ORDER NO. VRD-8206-099

Service Manual

Portable Video Cassette Recorder

Panasonic VHS

NV-100

Electronic Tuner/Timer Unit

NV-V10

AC Adaptor

NV-B11

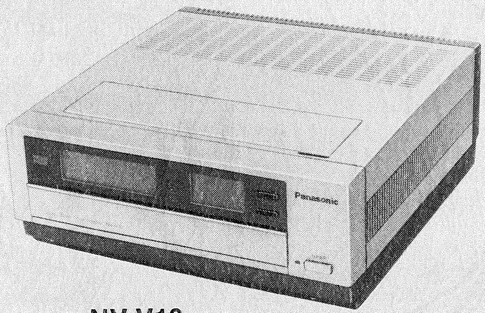
Wired Remote Controller

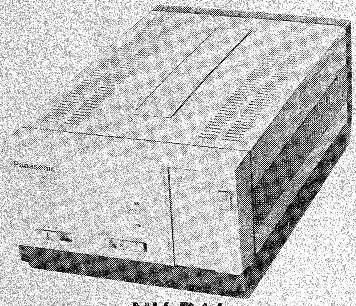
NV-A13

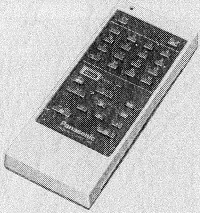
Wireless Remote Controller

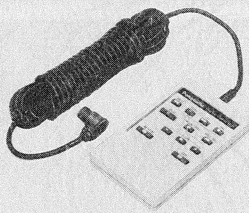
NV-A17

NV-V100


NV-V10


NV-B11


NV-A17


NV-A13

NV-100 Portable Deck

Vol. 1	Vol. 2	Vol. 3	Vol. 4
Summary *Operating Instructions*	*Mechanical Adjustment Procedures* *Electrical Adjustment Procedures*	*Block Diagrams* *Schematic Diagrams*	*Exploded Views* *Replacement Parts List*

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Vol. 6	**NV-B11**	AC Adaptor
Vol. 7	**NV-A13**	Wired Remote Controller
Vol. 8	**NV-A17**	Wireless Remote Controller

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Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

ORDER NO. VRD-8206-099

Service Manual

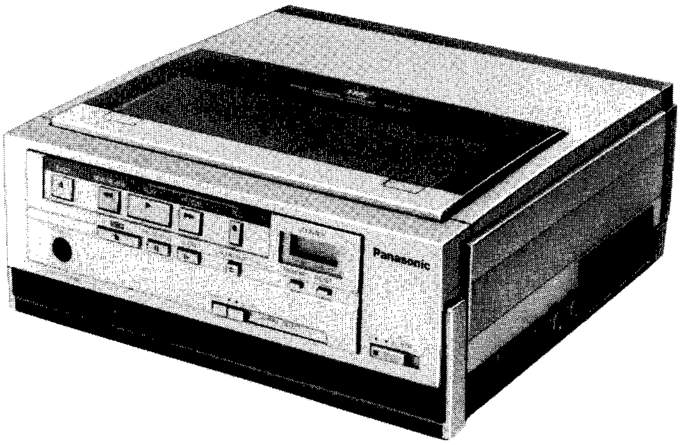
Portable Video Cassette Recorder

Panasonic VHS

NV-100-E -B -EG

Vol. 1

Summary Operating Instructions



SPECIFICATIONS

Power Source:	DC 12V
Power Consumption:	Approx. 6.7W at Play mode
Video Recording System:	2 rotary heads, helical scanning system
Tape Speed:	23.39mm/s
Tape Format:	Tape width 12.7mm high density tape
Record/Playback Time:	240 min. with NV-E240
FF/REW Time:	Less than 6.5 min. with NV-E180
VIDEO	
Television System:	CCIR: 625 lines, 50 fields PAL colour signal (PAL/D.D.R SECAM colour signal: NV-100EG only)
Modulation System:	Luminance: FM azimuth recording Colour signal: converted subcarrier phase shift recording
Input Level:	VIDEO IN (BNC): 1.0Vp-p, 75Ω unbalanced
Output Level:	VIDEO OUT (BNC): 1.0Vp-p, 75Ω unbalanced RF Modulated: UHF channel 36 (±4), 75Ω unbananced
AUDIO	
Input Level:	MIC IN (M3): −70dB, more than 600Ω unbalanced 10 pin input, Multi input: −20dB, 2.2kΩ unbalanced
Output Level:	LINE OUT (RCA): −6dB, 600Ω unbalanced Earphone: −10dB, 200Ω unbalanced
Audio Track:	1 track

Video Horizontal Resolution:	Colour: more than 240 lines
Signal-to-Noise Ratio:	Video: more than 40dB Audio: more than 43dB
Audio Frequency Response:	80Hz—10kHz
Operating Room Temperature:	0°C—40°C
Operating Humidity:	35%—80%
Weight:	3.8kg (with internal battery pack)
Dimensions:	236(W)×92(H)×242(D)mm
Standard Accessories:	1 pc. Video Cassette Tape 2 pcs. DIN-RF coaxial cable 1 pc. Audio Input Attenuator 1 pc. Earphone 1 pc. Carrying Case
Optional Accessories:	Video cassette tape: NV-E240 Approx. 344m, 240 min. NV-E180 Approx. 258m, 180 min. NV-E120 Approx. 174m, 120 min. NV-E90 Approx. 130m, 90 min. NV-E60 Approx. 88m, 60 min. NV-E30 Approx. 45m, 30 min. Battery Pack, LCS2012E Video Tuner/Timer Adaptor, NV-V10 AC Adaptor, NV-B11 Wireless Remote Controller, NV-A17 Wired Remote Controller, NV-A13 Car Battery Cord, NV-C12 Video Camera Microphone

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

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INTRODUCTION

This service manual contains technical information which will allows service technicians to understand and service the Panasonic portable PAL VHS Video Tape Recorder Model NV-100.
The NV-100 has many special features as shown below.
These features in addition to the basic PAL VHS Format make the unit an ideal one for your culture and entertainment.

CONTENTS

SYSTEM FEATURES 1-1
CONTROLS AND COMPONENTS 1-2
CAMERA RECORDING 1-4
SYSTEM CONNECTIONS 1-5

SYSTEM FEATURES

1. Compact and light weight

This truly compact and lightweight Video Cassette Recorder is the result of such developments as simplified construction, the reduction in size of various mechanical parts, and the use of ICs (integrated circuitry).

2. Four hour recording

New system for high-density recording allows up to 4 hours of recording on a single NV-E240 tape.

3. Multi-motion playback

In addition to playback at normal speed, you can operate multi-motion playback as follows.

CUE/REVIEW	forward and reverse at about 5 times normal speed
STILL-FRAME	to view a single scene
FINE-SLOW	for noiseless slow-motion
FRAME ADVANCE	to watch frame-by-frame playback

4. Fine-editing function

The Recorder eliminates the editing problem common to ordinary VTRs. When the pause is used during recording, the tape will automatically rewind slightly to reduce this break to a minimum of interference.

5. Insert Recording

The Recorder enables you to subsitute your desired picture for a previously recorded tape at any segment.

6. Three way power

The Recorder can be operated with a Battery Pack, the Tuner unit, the AC Adaptor or a car battery.

When the unit is used together with an optional tuner (NV-V10).

7. Watch one channel while recording another

The tuner allows the recording of a programme that you don't want to miss while watching another programme.

8. Unattended recording

The Programmable Tuner/Timer enables you to preset the Portable Video Cassette Recorder to record a TV programmes while you are away up to 4 programmes within a period of 14 days.

9. One-Touch Timer Recording

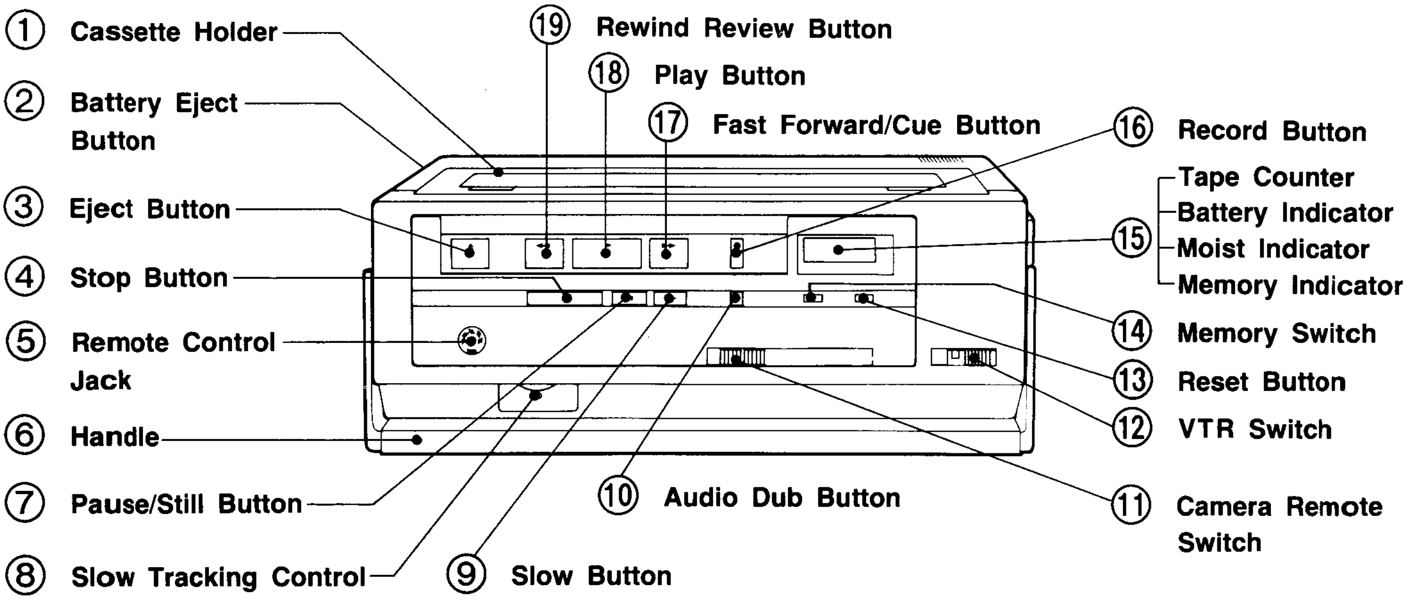
The Tuner enables you to do impromptu timer recordings at any time. Just select the channel and push the One Touch Record Button for 30, 60, 90 or 120 minutes of recording.

10. Optional Remote Controller

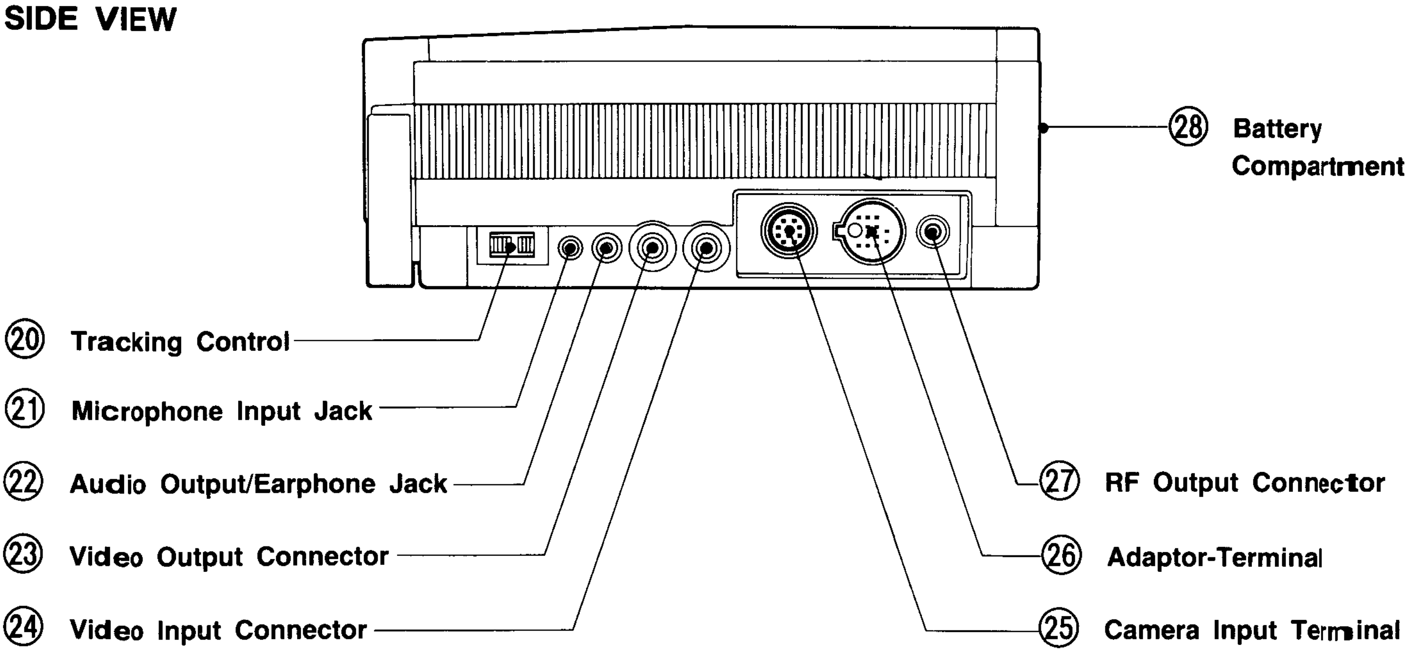
Operations may be performed from a distance with the Wired, Wireless Remote Controller.

CONTROLS AND COMPONENTS

TOP and FRONT


① Cassette Holder
② Battery Eject Button
③ Eject Button
④ Stop Button
⑤ Remote Control Jack
⑥ Handle
⑦ Pause/Still Button
⑧ Slow Tracking Control
⑨ Slow Button
⑩ Audio Dub Button
⑪ Camera Remote Switch
⑫ VTR Switch
⑬ Reset Button
⑭ Memory Switch
⑮ Tape Counter
Battery Indicator
Moist Indicator
Memory Indicator
⑯ Record Button
⑰ Fast Forward/Cue Button
⑱ Play Button
⑲ Rewind Review Button

SIDE VIEW


⑳ Tracking Control
㉑ Microphone Input Jack
㉒ Audio Output/Earphone Jack
㉓ Video Output Connector
㉔ Video Input Connector
㉕ Camera Input Terminal
㉖ Adaptor-Terminal
㉗ RF Output Connector
㉘ Battery Compartment

TOP and FRONT

① **Cassette Holder**

② **Battery Eject Button**
To remove the Battery, press this button.

③ **Eject Button**
Press this button to insert or to remove cassette. It is not possible to eject the cassette while the tape is moving or while power is off.

④ **Stop Button**
Press this button to stop the tape.

⑤ **Remote Control Jack**
For connecting the Wired Remote Control unit.

⑥ **Handle**

⑦ **Pause/Still Button**
Press this button to temporarily stop the tape movement in either the recording or playback mode. During playback, a still-frame picture is produced when the pause is in use. Press again to release pause.

⑧ **Slow Tracking Control**
This is used when noise appears on the picture during slow, still picture or frame-by-frame playback operations.

⑨ **Slow Button**
Press this button for slow-motion playback of tapes recorded.

⑩ **Audio Dub Button**
When this button is pressed simultaneously with the Play Button during playback, sound from another source can be recorded on the tape in place of the original sound. (The original sound will be erased.)

⑪ **Camera Remote Switch**
When camera recording, this switch must be set to REMOTE. Set it to NORMAL at other times.

⑫ **VTR Switch**
This switch is used to turn the VTR deck on and off.

⑬ **Reset Button**
Pressing this button causes the Tape Counter to return to "0000".

⑭ **Memory Switch**
When this switch is in the "ON" position, the tape will stop when the Tape Counter reaches "0000" during fast forward and rewind.

⑮ **Tape Counter**
By beginning the recording at "0000" subsequent playback will be more convenient.

Battery Indicator
This indicates the remaining battery charge.

Moist Indicator
If condensation occurs in the VTR, the Moist Indicator will flash on and off to 3 seconds when the VTR is turned on and the VTR will be turned off automatically. In this case, wait until the lamp no longer flashes when the Power Switch is turned on again.

Memory Indicator
"M" is indicated when the Memory Switch is ON.

⑯ **Record Button**
Recording is started by pressing this button and the Play Button at the same time.

⑰ **Fast Forward/Cue Button**
Press this button to move the tape forward rapidly. During the play mode pressing this button will allow you to view the tape in the forward direction at about 5 times the recorded tape speed.

⑱ **Play Button**
Press this button to play back recorded tapes.

⑲ **Rewind/Review Button**
Press this button to rewind tapes. During the play mode pressing this button will allow you to view the tape in reverse at about 5 times the recorded tape speed.

SIDE VIEW

⑳ **Tracking Control**
Use this control during playback if the image is partially obscured by bands of noise.

Noisy Picture

㉑ **Microphone Input Jack**
For connecting an Audio Input Attenuator (included). This is useful for recording and audio dubbing.

㉒ **Audio Output/Earphone Jack**
For connection to a monitor TV, another VTR, audio tape recorder or earphone.

㉓ **Video Output Connector**
For connection to a monitor TV or another VTR.

㉔ **Video Input Connector**
For connection from another VTR.

㉕ **Camera Input Terminal**
For connection of a portable video camera (optional).

㉖ **Adaptor-Terminal**
This can be used to connect the Recorder to the Tuner, the AC Adaptor or the Car Battery Cord with a single connection.

㉗ **RF Output Connector**
For connection to a TV. This connector is the signal output connector from the RF Convertor.

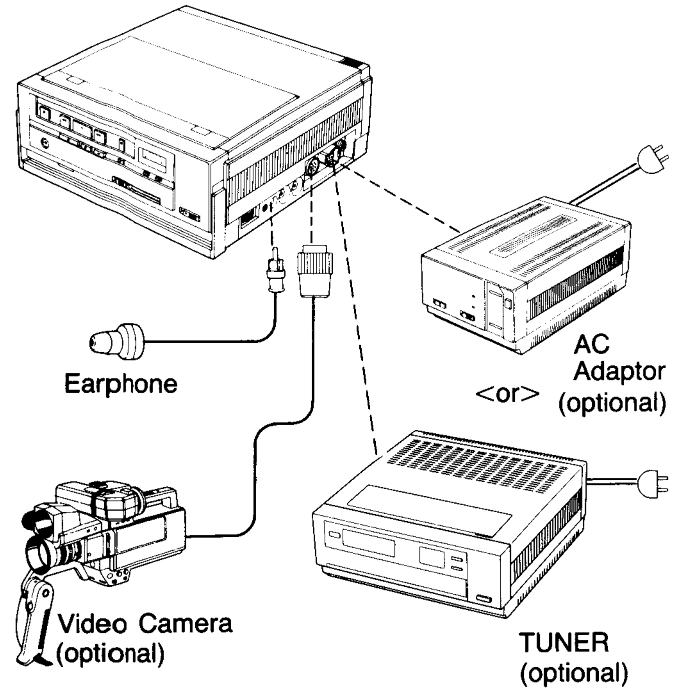
㉘ **Battery Compartment**
Place for LCS-2012E battery fits.

CAMERA RECORDING

The Recorder may be used with an optional Panasonic video camera, and will also work with most other video cameras with a 10-pin camera cable.

First The Camera Remote Switch must be set to ON.

Indoor Camera Recording Connection


AC
Adaptor
<or> (optional)
Earphone
Video Camera
(optional)
TUNER
(optional)

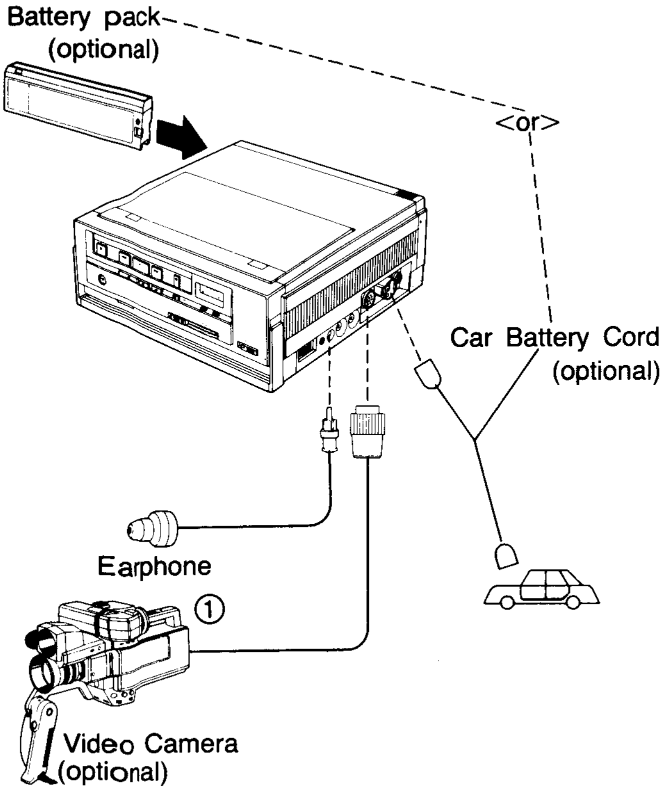
- When you make a camera recording with a video camera designed for this portable VTR, make certain that the VIDEO IN jack of the VTR is free, or the camera remote system will not function.
- If you want to review the tape you have recorded immediately, you can do so with the electronic viewfinder of the camera.

Earphone

You can listen to the sound by connecting the Earphone to Audio Output/Earphone Jack on the Recorder.

NOTE:
If the Battery Pack is used for camera recording, no picture will be monitored on your TV.

Outdoor Camera Recording Connection


Battery pack
(optional)
<or>
Car Battery Cord
(optional)
Earphone
①
Video Camera
(optional)

① Make any necessary adjustments on the camera. Refer to the operating instructions of the camera you are using or of the camera designed specially for this Recorder on how to handle the camera and how to start and stop camera recording.

- If you want to review the tape you have recorded immediately, you can do so with the electronic viewfinder of the camera.
- When using the Battery Pack, make sure the Power is OFF, then insert the Battery Pack. Be sure to check the Battery Indicator after turning the Power ON.

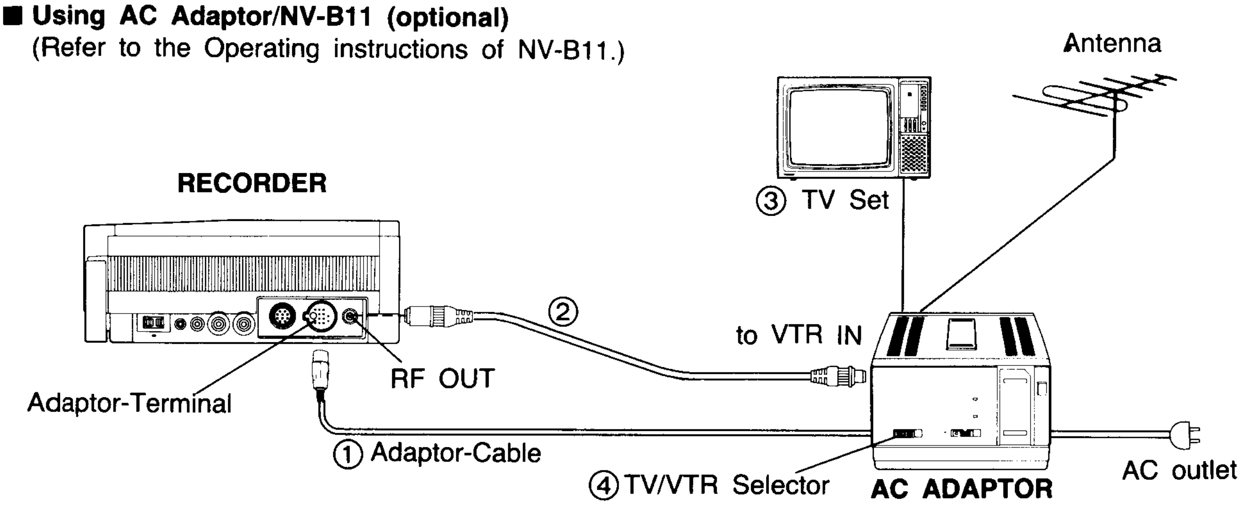
SYSTEM CONNECTIONS

For PLAYBACK—Recorded Tape

TV programme can't be recorded with this connection.

■ Using AC Adaptor/NV-B11 (optional)

(Refer to the Operating instructions of NV-B11.)

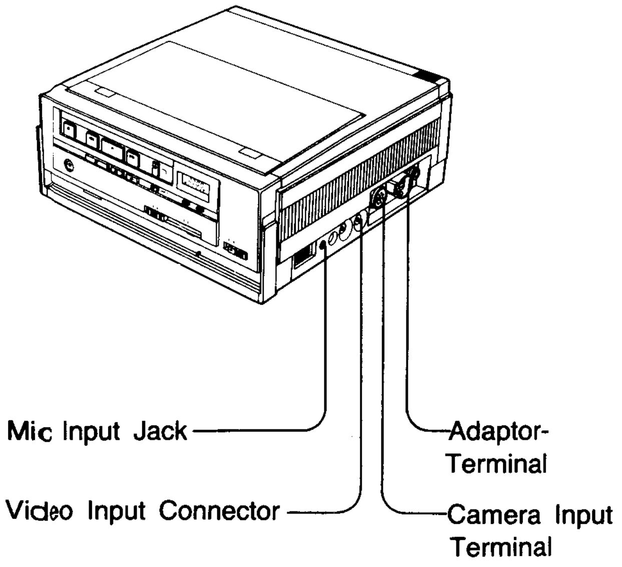

Antenna
RECORDER
③ TV Set
②
to VTR IN
RF OUT
Adaptor-Terminal
① Adaptor-Cable
④TV/VTR Selector
AC ADAPTOR
AC outlet

Connect the VTR, TV set and AC adaptor as shown in the figure above. Make sure all the equipment is connected properly.

① Connect the AC ADAPTOR cable to the Adaptor terminal of the recorder.

② Connect RF OUT terminal to VTR IN on the AC ADAPTOR for playback or for watching TV.using the DIN RF cable.

NOTE:
If the Video/Camera Input Terminals are connected simultaneously, the two video signals will be superimposed.

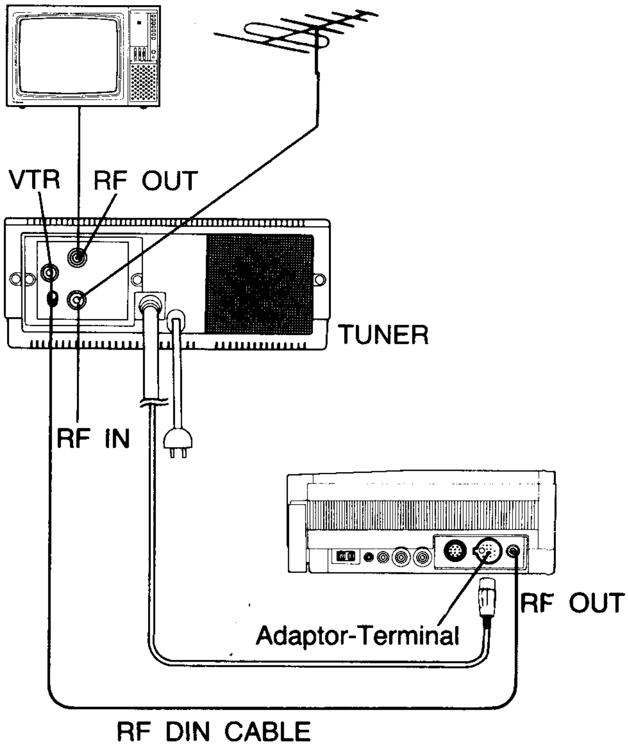

Mic Input Jack
Adaptor-Terminal
Video Input Connector
Camera Input Terminal

③ Turn TV on and select a channel for RF Output.

④ Set the TV/VTR Selector to VTR to watch the playback of a video recording. To watch normal TV programme, set the selector to TV.

■ Using Tuner/NV-V10 (optional)

(Refer to the Operating Instructions of NV-V10.)


VTR
RF OUT
TUNER
RF IN
RF OUT
Adaptor-Terminal
RF DIN CABLE

Panasonic

MATSUSHITA ELECTRIC

Printed in Japan

ORDER NO. VRD-8206-099

Service Manual

Portable Video Cassette Recorder

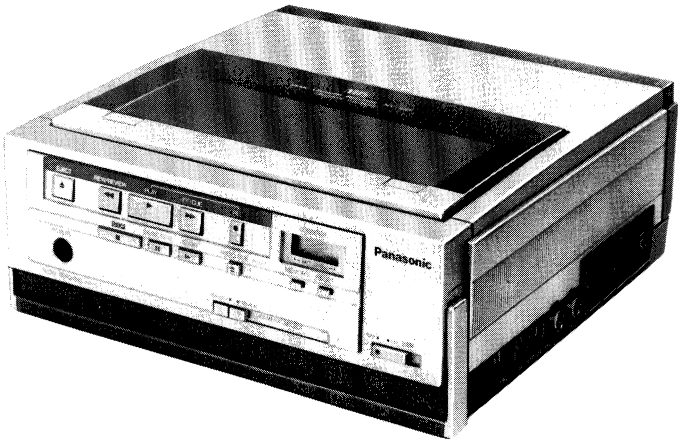
Panasonic VHS

NV-100-E -B -EG

Vol. 2

Mechanical Adjustment Procedures

Electrical Adjustment Procedures



SPECIFICATIONS

Power Source: DC 12V
Power Consumption: Approx. 6.7W at Play mode
Video Recording System: 2 rotary heads, helical scanning system
Tape Speed: 23.39mm/s
Tape Format: Tape width 12.7mm high density tape
Record/Playback Time: 240 min. with NV-E240
FF/REW Time: Less than 6.5 min. with NV-E180

VIDEO
Television System: CCIR: 625 lines, 50 fields PAL colour signal
(PAL/D.D.R SECAM colour signal: NV-100EG only)
Modulation System: Luminance: FM azimuth recording
Colour signal: converted subcarrier phase shift recording
Input Level: VIDEO IN (BNC): 1.0Vp-p, 75Ω unbalanced
Output Level: VIDEO OUT (BNC): 1.0Vp-p, 75Ω unbalanced
RF Modulated: UHF channel 36 (±4), 75Ω unbananced

AUDIO
Input Level: MIC IN (M3): −70dB, more than 600Ω unbalanced
10 pin input, Multi input: −20dB, 2.2kΩ unbalanced
Output Level: LINE OUT (RCA): −6dB, 600Ω unbalanced
Earphone: −10dB, 200Ω unbalanced
Audio Track: 1 track

Video Horizontal Resolution: Colour: more than 240 lines
Signal-to-Noise Ratio: Video: more than 40dB
Audio: more than 43dB
Audio Frequency Response: 80Hz—10kHz
Operating Room Temperature: 0°C—40°C
Operating Humidity: 35%—80%
Weight: 3.8kg (with internal battery pack)
Dimensions: 236(W) × 92(H) × 242(D)mm
Standard Accessories: 1 pc. Video Cassette Tape
2 pcs. DIN-RF coaxial cable
1 pc. Audio Input Attenuator
1 pc. Earphone
1 pc. Carrying Case
Optional Accessories: Video cassette tape:

NV-E240	Approx.	344m,	240 min.
NV-E180	Approx.	258m,	180 min.
NV-E120	Approx.	174m,	120 min.
NV-E90	Approx.	130m,	90 min.
NV-E60	Approx.	88m,	60 min.
NV-E30	Approx.	45m,	30 min.

Battery Pack, LCS2012E
Video Tuner/Timer Adaptor, NV-V10
AC Adaptor, NV-B11
Wireless Remote Controller, NV-A17
Wired Remote Controller, NV-A13
Car Battery Cord, NV-C12
Video Camera
Microphone

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

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MECHANICAL ADJUSTMENT PROCEDURES

DISASSEMBLY OF CABINET PARTS

1. DISASSEMBLY FLOWCHART

This flowchart indicates disassembly steps of the cabinet parts and the Bottom P.C.B.s in order to gain access to the items necessary for servicing. When reassembling, perform the steps in the reverse order. The bottom plate can be removed individually.

Notes:

1. When removing the front panel, work with care so as not to break the locking portions.
2. Adjustments are required if the Cassette Up Holder was replaced.

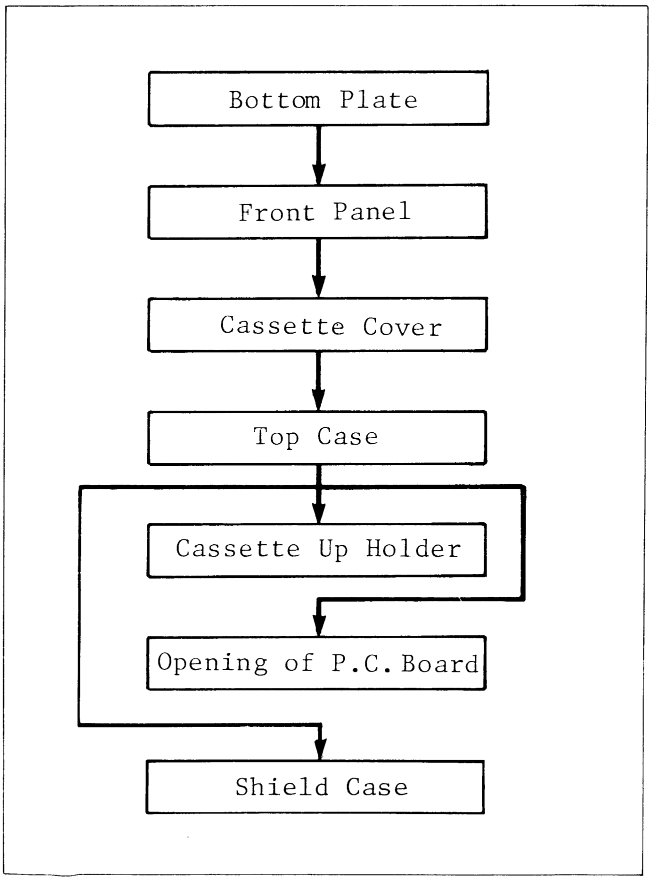

Bottom Plate
Front Panel
Cassette Cover
Top Case
Cassette Up Holder
Opening of P.C. Board
Shield Case

Fig. M1 Disassembly Flowchart

2. DISASSEMBLY METHOD

Notes:

a. Place the cloth or any other soft materials under the P.C. Boards or deck for preventing them being damaged while servicing.
b. When reinstalling, ensure the connectors are connected and any electrical components are not damaged.

2-1. Removal of the Bottom Plate

1. Place the deck upside down so the bottom plate faces upward.
2. Remove 4 screws (A). Then remove the bottom case by lifting the rear portion of it.

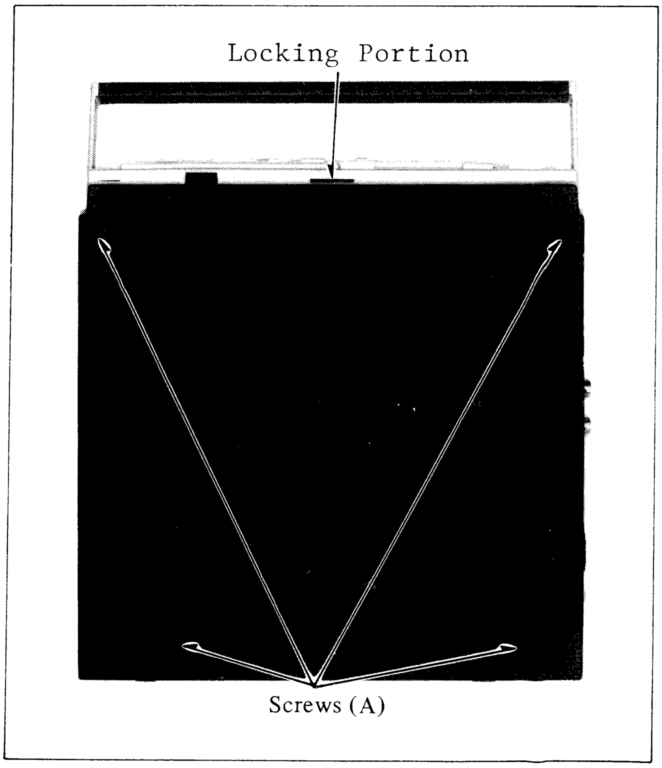

Locking Portion
Screws (A)

Fig. M2 Removal of the Bottom Plate

Note:

When reinstalling, first insert the locking portion into the slot of the front panel.

2-2. Removal of the Front Panel

1. Remove the CAMERA/REMOTE switch knob, unlock the locking portions and hold the both right and left ends of the front panel. Then carefully lift and turn the top portion of it to remove. And remove the connectors (P23 and Earth line).

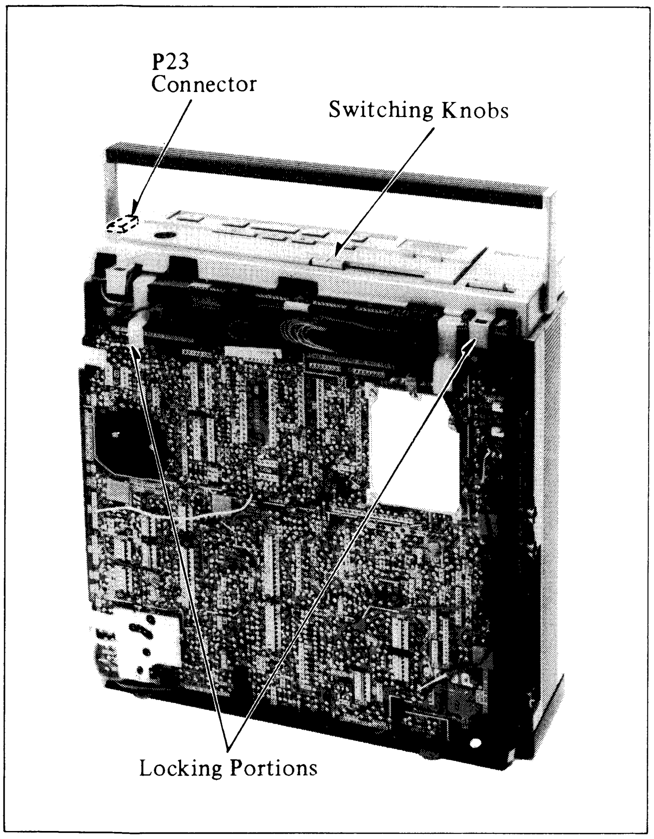


Fig. M3. Removal of the Front Panel

Note:
When reinstalling, first suit the locking portions of the cassette holder unit.

Note:
Work this step with extreme care for not being damaged on the locking portions.

2-3. Removal of the Cassette Cover

Supply the power to the deck and turn it on. Then press the EJECT button to raise the cassette up holder. Remove 2 rubbers and 2 screws (B). Then carefully lift and turn the front portion of it to remove. Pay attention for not being damaged on the locking portions.

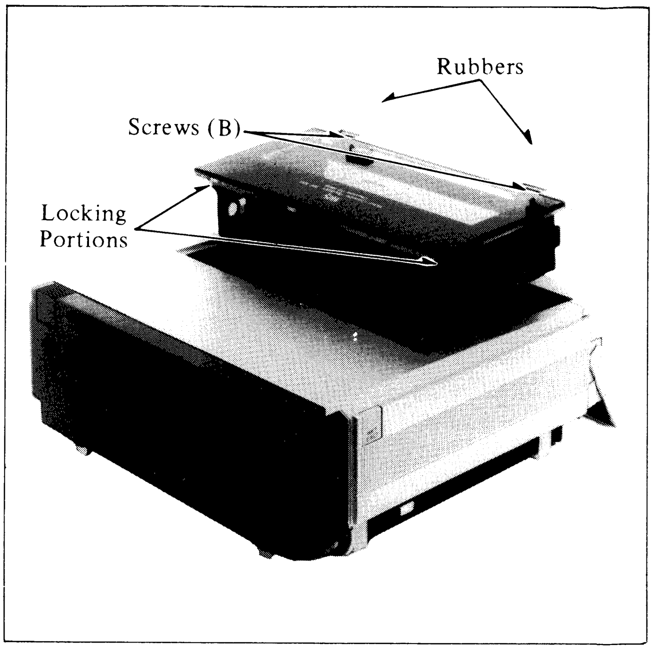


Fig. M4. Removal of the Cassette Cover

2-4. Removal of the Top Case

1. First confirm that the battery is inside the battery compartment or not. If it is, take the battery out.
2. Remove 2 screws (C). Then remove the top case.

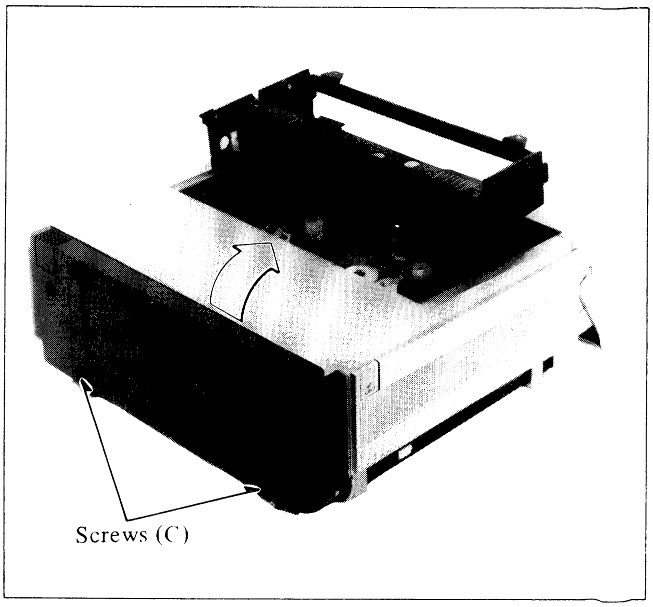


Fig. M5. Removal of the Top Case

2-5. Removal of the Cassette Up Holder

Remove 2 connectors P40 and P41. Then unlock the 2 locking portions and open the Front P.C. Board. Then remove 6 screws (D), and remove the cassette up holder.

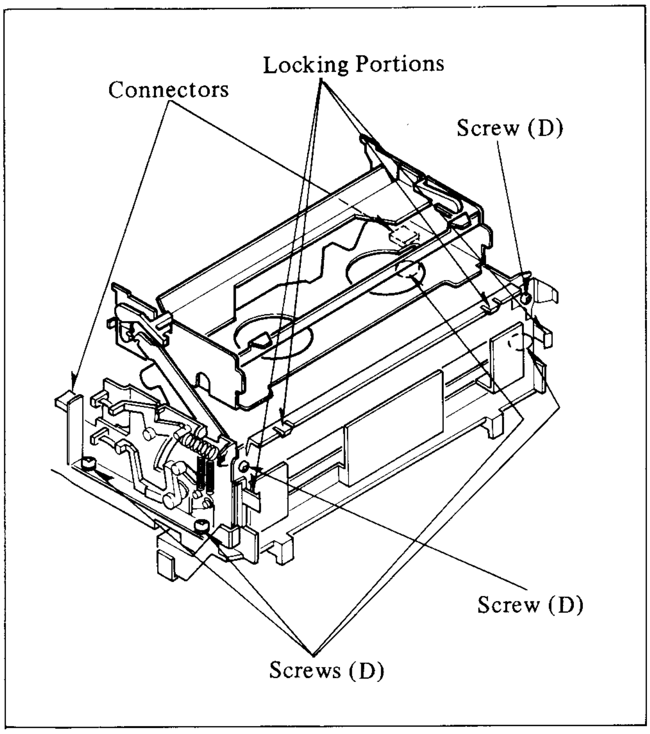

Connectors
Locking Portions
Screw (D)
Screw (D)
Screws (D)

Fig. M6. Removal of the Cassette Up Holder

Note:

When this part was removed or replaced the final adjustment is required. Refer to "ADJUSTMENT OF CASSETTE UP HOLDER" section.

2-6. Opening of the P.C. Board

Unlock the 6 locking portions, remove the plastic rivet and disconnect the connector P1 then open the P.C. Board.

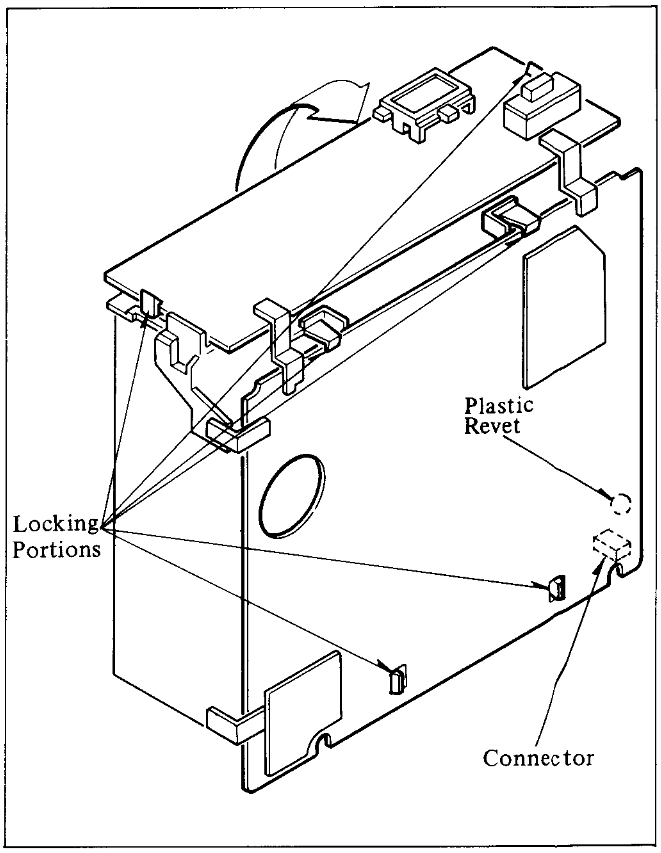

Plastic
Revet
Locking
Portions
Connector

Fig. M7. Opening of the P.C. Board

2-7. Removal of the Shield Case

Remove the 2 screws (E) and the plastic rivet. Then carefully lift it up to remove.

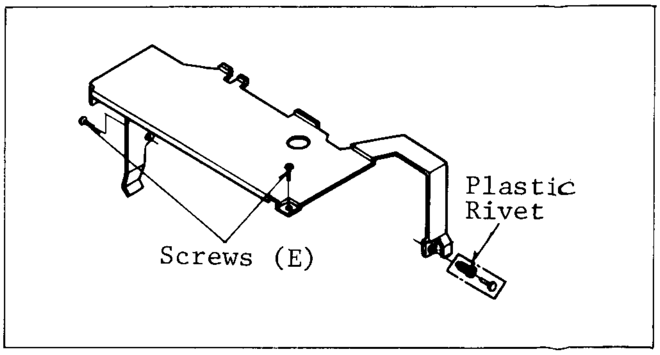

Plastic
Rivet
Screws (E)

Fig. M8. Removal of the Shield Case

ADJUSTMENT PROCEDURES

1. REPLACEMENT OF UPPER CYLINDER UNIT

Work with extreme care when removing or replacing the upper cylinder unit. Do not touch video heads during servicing.

1. Unsolder the 4 wires which are color-corded to matching wires on the head relay board.
2. Remove the 2 screws and gently lift the upper cylinder unit from the shaft.

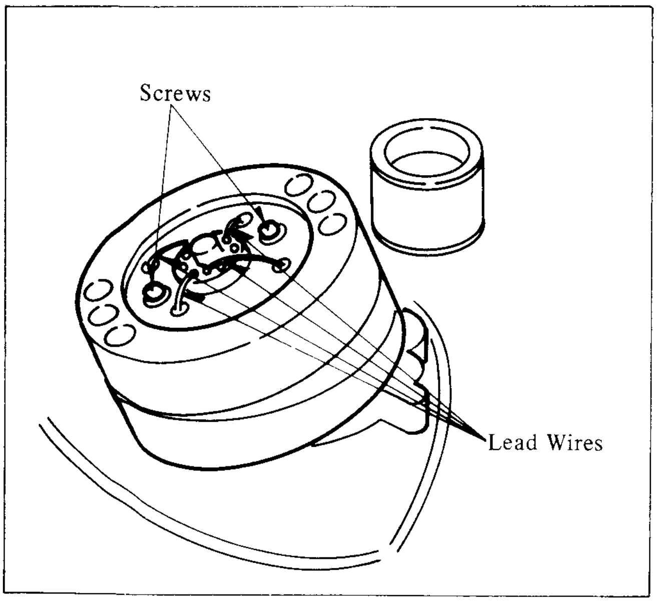


Fig. M9. Replacement of Upper Cylinder Unit-(1)

3. Before reinstalling a new unit, clean the DD cylinder shaft and the surface that engages with on the upper cylinder with a soft cloth dampened with freon liquid.

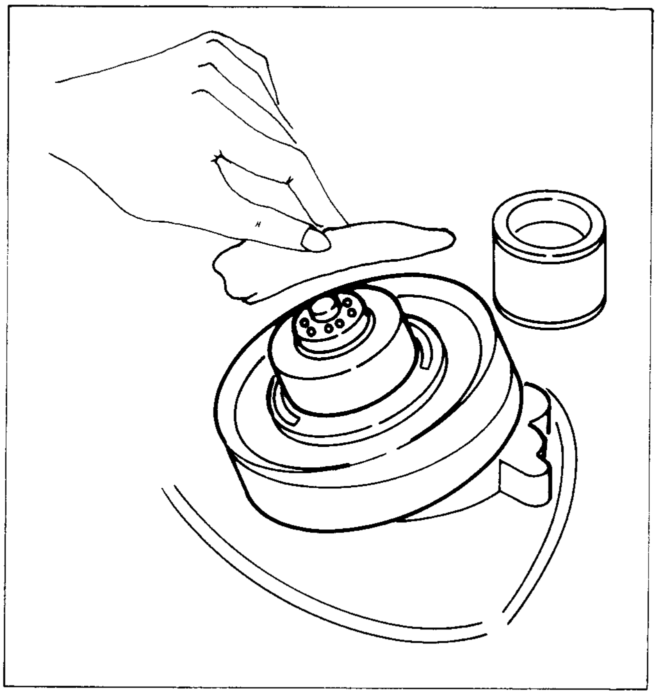


Fig. M10. Replacement of Upper Cylinder Unit-(2)

4. Install new unit so that the color cord of the head relay board. Tighten the 2 screws and resolder the 4 wires to the head relay board.

Note:

Upon completion of replacement, confirm performance. And if required, perform "TAPE INTERCHANGEABILITY ADJUSTMENT".

2. REPLACEMENT OF D.D. CYLINDER UNIT

Work with extreme care when removing or replacing the DD cylinder unit. Do not touch video heads during servicing.

1. Disconnect the connector cover on P001 and 2 connectors P001 (on top side) and P002 (on bottom side) from the DD cylinder unit.
2. Remove the screw (A) and discharge angle.
3. Remove the DD cylinder unit and cylinder cover by removing 5 screws (B).

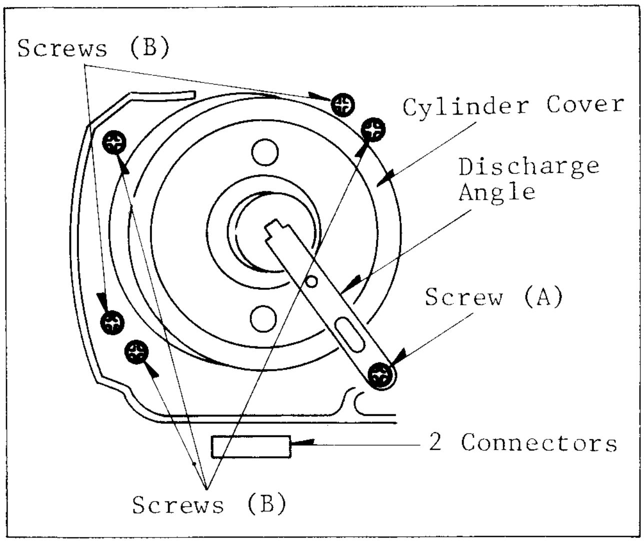

Screws (B)
Cylinder Cover
Discharge Angle
Screw (A)
2 Connectors
Screws (B)

Fig. M11. Replacement of D.D. Cylinder Unit–(1)

Note:

Since there is very little clearance between DD cylinder unit and chassis, remove the DD cylinder unit gently and carefully.

4. Reinstall the new DD cylinder unit, restore the wires and connect the P001 and P002.

Notes:

1. When reinstall the New DD Cylinder unit, fit the new DD cylinder unit to the chassis by turn counterclockwise it.

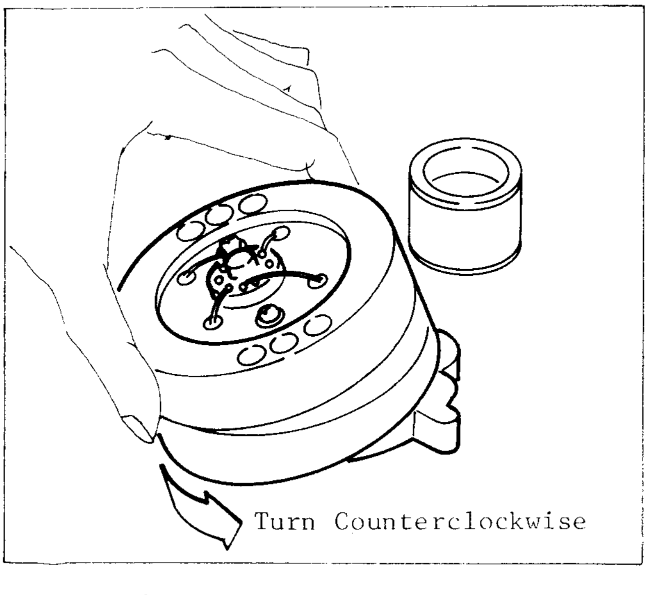

Turn Counterclockwise

Fig. M12. Replacement of D.D. Cylinder Unit–(2)

2. Upon completion of replacement, confirm performance. If any further maintenance is required, perform "TAPE INTERCHANGEABILITY ADJUSTMENT".

3. CONFIRMATION OF BRAKE TORQUE

Equipment Required:

Dial Torque Gauge	VFK0133
Adaptor for Gauge	VFK0134

1. Attach the adaptor to the torque gauge and place the deck in STOP mode.
2. Place the torque gauge on the reel table. The weight of gauge should not rest on the reel table.

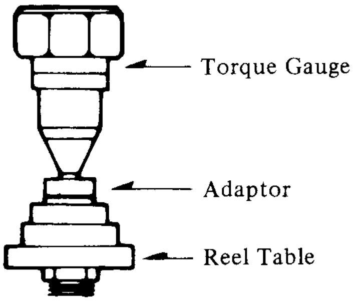
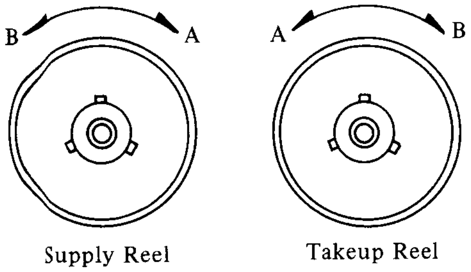


Fig. M13. Confirmation of Brake Torque–(1)

3. Turn torque gauge in either direction indicated in the Fig. M15 and read the gauge when the brake begins slipping.

Note:

If proper brake torque can not be obtained, clean the rotating surface of reel table with a soft cloth and recheck torque before replacing brake drum.



	A	B
Takeup	300g.cm ∿ 800g.cm	70 ∿ 150g.cm
Supply		

Fig. M14. Confirmation of Brake Torque–(2)

4. CONFIRMATION OF TAKE-UP TORQUE

Equipment Required:

Dial Torque Gauge	VFK0133
Adaptor for Gauge	VFK0134

Specifications:

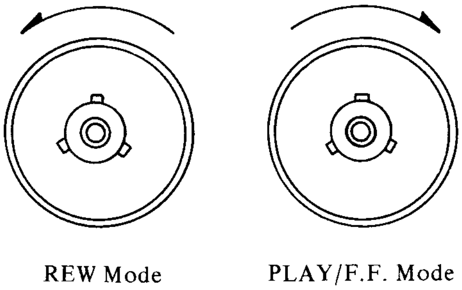
in PLAY mode	125 ± 20g.cm
in FF mode	more than 400g.cm
in REW mode	more than 400g.cm
in REV mode	170 ± 25g.cm

1. Attach the adaptor to the torque gauge.
2. Cover the take-up and supply phototransistors with black tape. Lower the cassette up holder (without cassette cover), and turn power switch on.
3. Place the torque gauge on the take-up reel table, push the play button and read torque on the gauge. Repeat in FF mode by pushing the FF button.

Note:

While measuring, the weight of the gauge should not rest on the reel table.

4. Set the torque gauge on the supply reel table, press the rewind button to check REW mode torque.
5. Repeat in REV mode by pushing the REW button in playback mode.
6. Remove the black tape that covered the phototransistors.



PLAY Mode	125± 20g.cm
F.F. Mode	more than 400g.cm
REW Mode	more than 400g.cm
REV Mode	70 ± 25g.cm

Fig. M15. Confirmation of Takeup Torque

5. POSITION ADJUSTMENT OF TENSION POST

Equipment Required:
Tension Post Adjustment Plate
.... VFK0241
Fine Adjustment Screwdriver
.... VFK0136

1. Cover the phototransistor with black tape. Lower the cassette up holder (without cassette cover), and turn power switch on.
2. Push the play button for loading. As soon as the loading is completed, disconnect the Adaptor Connector.
3. Then remove the cassette up holder.
4. Place the adjustment plate over the reels and slightly loosen the screw (A) securing the tension band bracket.
5. Insert the fine adjustment screwdriver into the hole and move the tension band bracket in either of direction so that the tension post just touches the adjustment plate. The tension post removes from the adjustment plate by turning the fine adjustment screwdriver counterclockwise. Then turn it clockwise until the tension post just touches the adjustment plate and tighten the mounting screw.

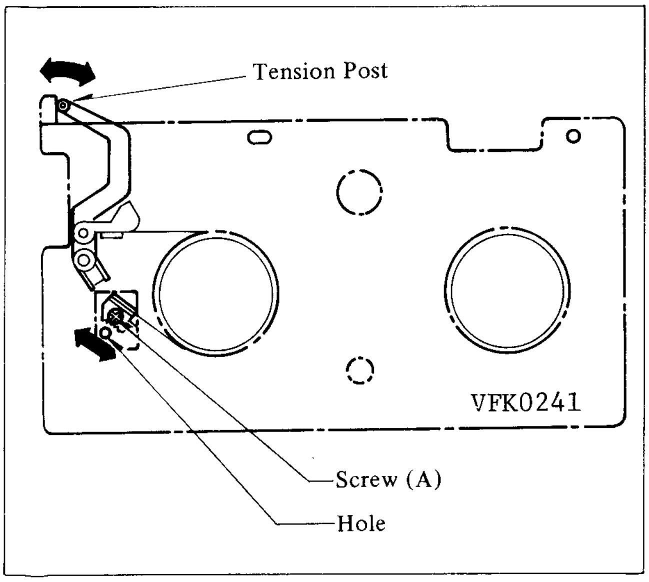


Fig. M16. Position Adjustment of Tension Post

6. MEASUREMENT AND ADJUSTMENT OF BACK TENSION

A. Measurement Procedure

Equipment Required:
Back Tension Meter
.... Tentelometer
Model T2-H7-UM
Purchase Locally
VHS Cassette Tape .... 120 Minutes tape
Specification: 25 ∿ 30g

1. Pull the erase head in the direction indicated by the arrow and hold it by adhesive tape.
2. Play back the cassette tape from its beginning and wait until tape running has stabilized. (for approx. 10 to 20sec)
3. Insert tension meter in tape path and confirm reading.
4. If the reading is out of spec., continuously perform the adjustment procedure.

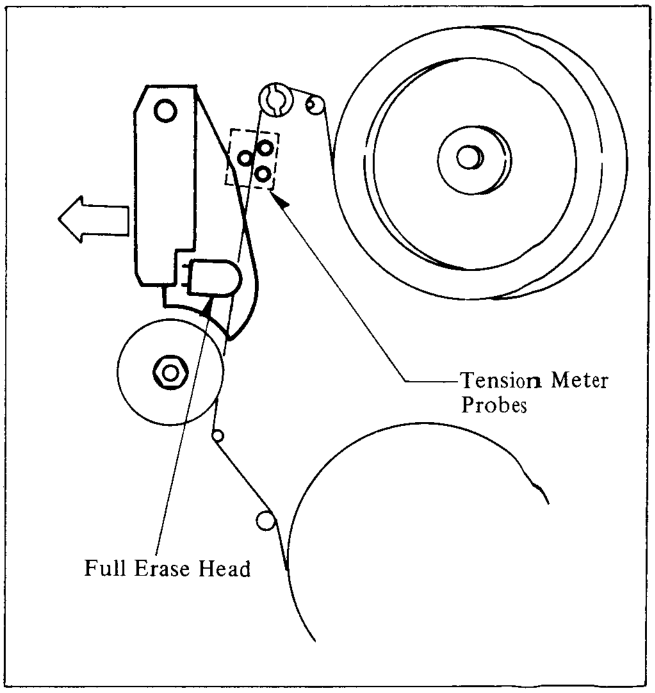


Fig. M17. Measurement of Back Tension

Notes:
1. Make sure that the three probes of the meter are all in good contact with tape, but out of contact with any part while measuring.
2. It is recommended to be measured three times as tension meter is very sensitive.

B. Adjustment Procedure

Equipment Required:
Fine Adjustment Screwdriver
.... VFK0136

1. Loosen a screw (A) and insert the fine adjustment screwdriver into the hole (B).
2. Turn the screwdriver in either of direction indicated by the arrow to obtain the specified tension. Turn the screwdriver clockwise to lower tension, counterclockwise to raise it.

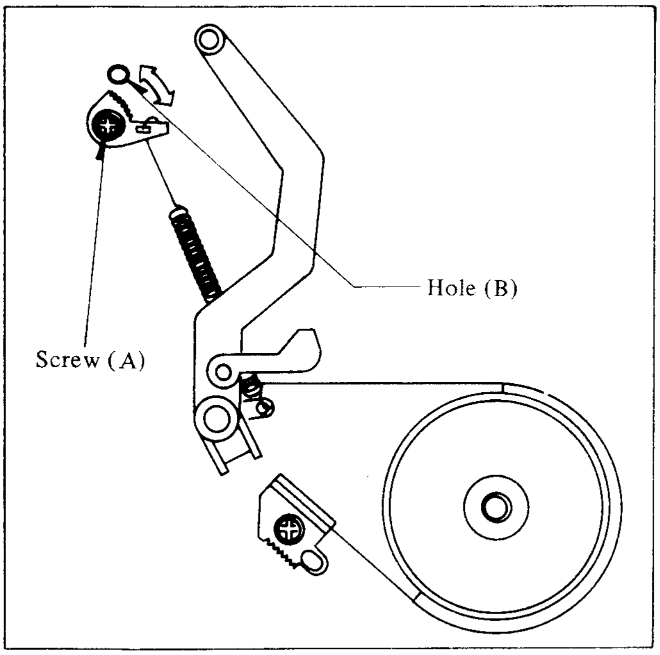


Fig. M18. Adjustment of Back Tension

3. Tighten the screw (A) and verify tension with the meter once again.

Note:
Upon completion of adjustment, remove the adhesive tape.

7. HEIGHT ADJUSTMENT OF REEL TABLES

Equipment Required:
Post Adjustment Plate VFK0191
Reel Table Height Gauge VFK0190
Specification .... ±0.1mm

* Cut-out surface of VFK0191 is reference of height of reel tables and their height are measured based on this reference.

1. Place the post adjustment plate over the reels, and put the gauge on it. Set the gauge to zero "0" with the condition that the foot scraper of the gauge touches the cut-out portion of the plate.

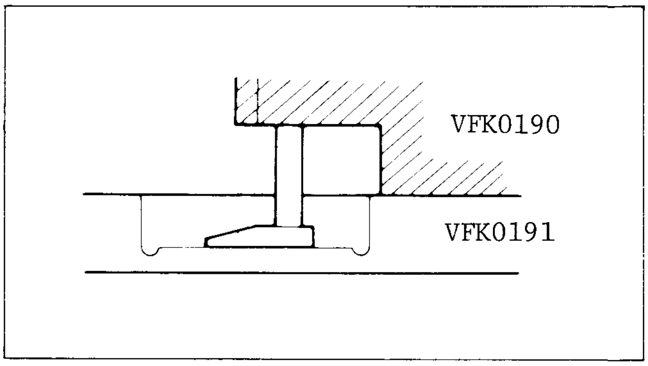


Fig. M19. Height Adjustment of Reel Tables–(1)

2. Then measure the top portion of reel table and confirm the difference against the condition just performed in former step. Do same for the other reel table.

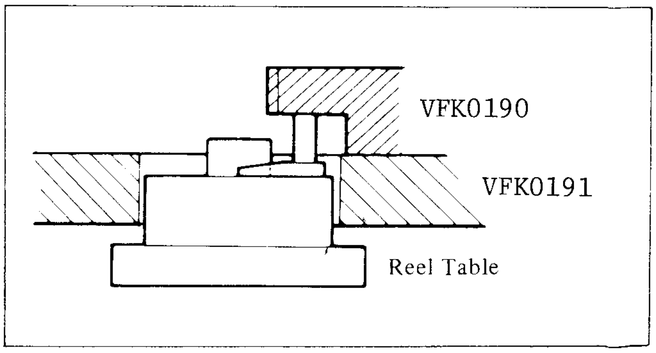


Fig. M20. Height Adjustment of Reel Tables–(2)

3. If the difference of reading of gauge between height at cut-out portion of VFK0191 and the height of reel tables is more than 0.1mm (higher or lower), adjust the height of reel to obtain the specified height.
4. For adjustment, change the poly slider washer located under the reel table. The washer is available in three sizes of thickness, t = 0.13mm, 0.25mm and 0.5mm.

8. HEIGHT ADJUSTMENT OF TAPE GUIDE POSTS

Equipment Required:

Hex. Wrench (0.9mm)	VFK0146
Post Adjustment Plate	VFK0191
Reel Table Height Gauge	VFK0190
Nut Driver (5.5mm) ...	Purchase Locally
Post Adjustment Screwdriver	VFK0137

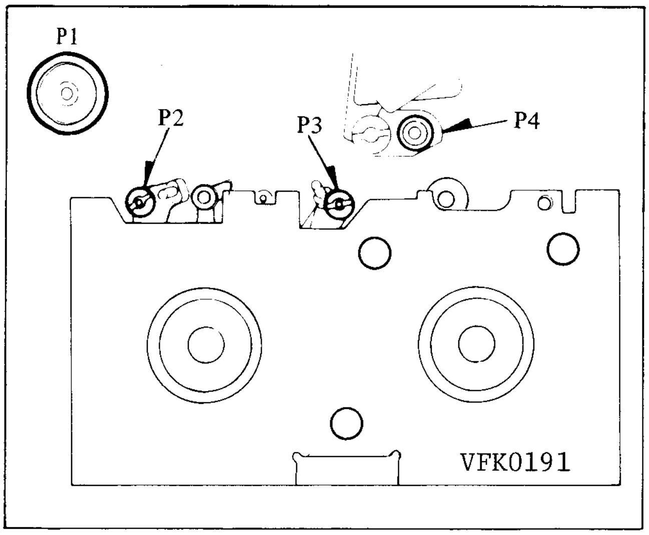


Fig. M21. Height Adjustment of Tape Guide Posts–(1)

1. First install the post adjustment plate and lower all posts so that the condition as shown. (Lower end of post, tape guide, should be lower than foot of gauge.) Loosen a hex. screw located on the lower portion of posts (P2 & P3) then turn the top of the posts with post adjustment screwdriver.

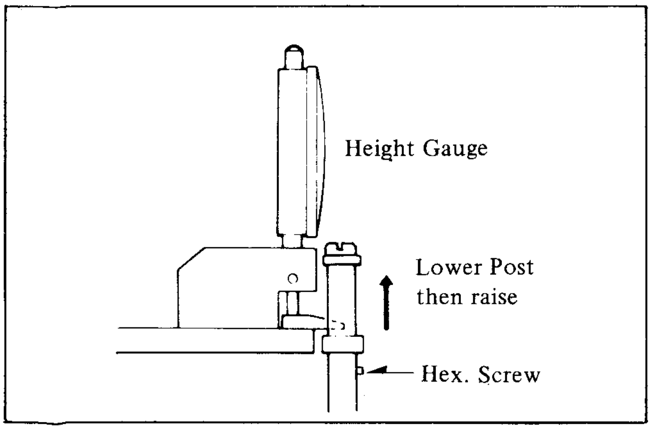


Fig. M22. Height Adjustment of Tape Guide Posts–(2)

2. Place the height gauge on the adjustment plate and fit the foot of gauge to the post. The condition to fit the foot of gauge should be as shown.
(The foot of gauge should be fully lowered till it touches the plate.)

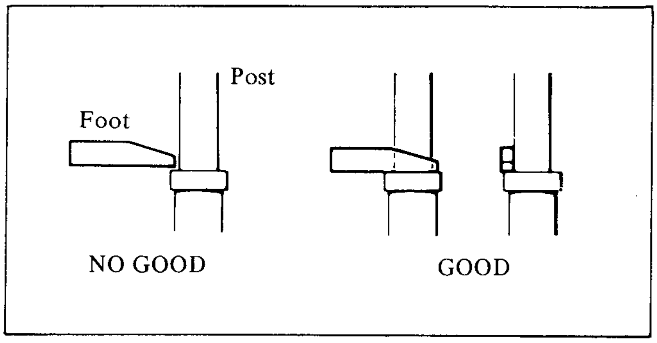


Fig. M23. Height Adjustment of Tape Guide Posts–(3)

3. Set the height gauge to zero and slowly raise the post until it just touches the foot of gauge. For adjustment of P1 & P4, use the nut driver.

Note:
Upon completion of adjustment, tighten hex. screws on P2 and P3 and install the post cap on P4. When the post cap on P4 is reinstalled, the direction of it should be as shown below viewing from the direction indicated by the arrow.

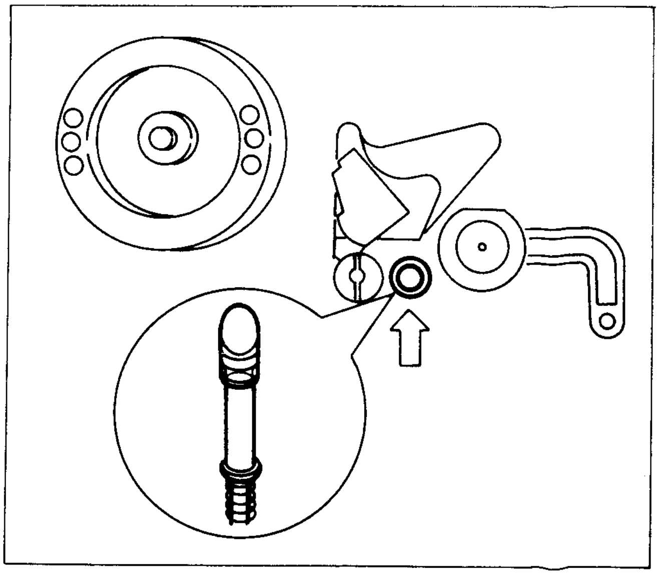


Fig. M24. Height Adjustment of Tape Guide Posts–(4)

9. HEIGHT ADJUSTMENT OF PULL OUT POST

Notes:

1. The adjustment should be performed after the adjustment of P4 as the spec. is based on height of P4.
2. The adjustment should be performed in the Loading completion mode.
3. Unless the replacement or adjustment of this post is completed, remove the Adaptor-Connector.

Equipment Required:

Post Adjustment Plate	VFK0191
Reel Table Height Gauge	VFK0190
Nut Driver (5.5mm)	Purchase Locally

Specification: 0.02mm ∿ 0.06mm

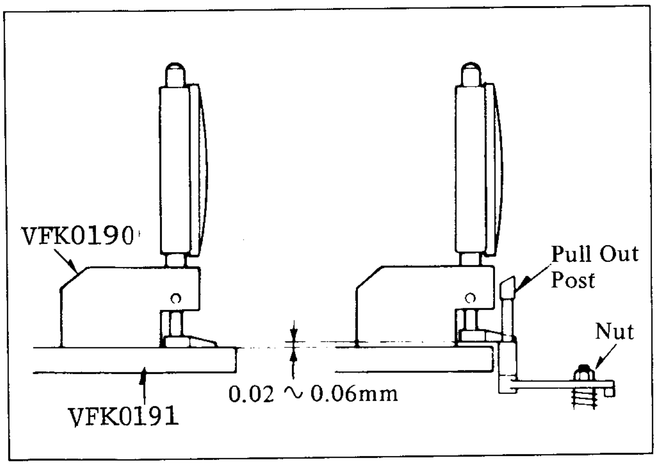


Fig. M25. Height Adjustment of Pull Out Post

1. Turn power switch on, cover the take-up and supply phototransistors with black tape, press the cassette up holder down and push the play button for loading.
2. As soon as loading is completed, disconnect the Adaptor-Connector and remove the cassette up holder.
3. Place the post adjustment plate, put the reel table height gauge on the plate and set height gauge to zero with condition the foot touches on the height adjustment plate.
4. Slightly lower the post by turning the nut clockwise. Fit the foot to the post so that the condition becomes as shown in Fig. M25.
5. Then slowly and slightly turn the nut till the gauge reads specified height.
6. Reinstall the cassette up holder and remove the black tape that covered the phototransistors and reconnect for unloading.

10. TAPE INTERCHANGEABILITY ADJUSTMENT

Note:

To perform these adjustment/confirmation procedures, make sure that the tracking control is set into the detent (fixed) position.

Equipment Required:

Alignment Tape	VFM8100H3D
Post Adjustment Screwdriver	VFK0137
H-Position Adjustment Screwdriver	VFK0189
Hex. Wrench (0.9mm)	VFK0146
Hex. Wrench (1.5mm)	VFK75
Nut Driver (5.5mm)	Purchase Locally
Oscilloscope	

10-1. Confirmation of Tape Travel

1. Playback a cassette tape and confirm that the tape travels without curling at the edges of the tape.

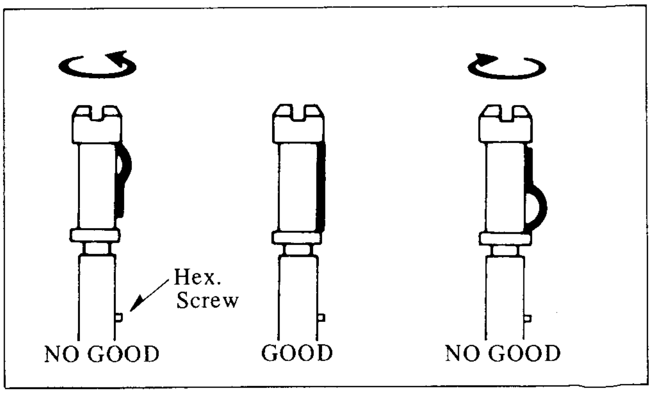


Fig. M26. Confirmation of Tape Travel

2. If curling is apparent, adjust the height of posts by turning the top of post with the post adjustment screwdriver (for P2 & P3).

Note:
Before turning P2 and P3, slightly loosen a hex. screw.

10-2. Confirmation of A/C Head Height

Note:
Unless the A/C Head is replaced, this procedure should not be performed.

1. Looking at the lower edge of the control head with the tape running, ensure that the lower edge of the tape runs along the lower edge of the control head. If it doesn't, slightly turn the nut (A) in either direction to correct. Clockwise to lower the head and counterclockwise to raise it.

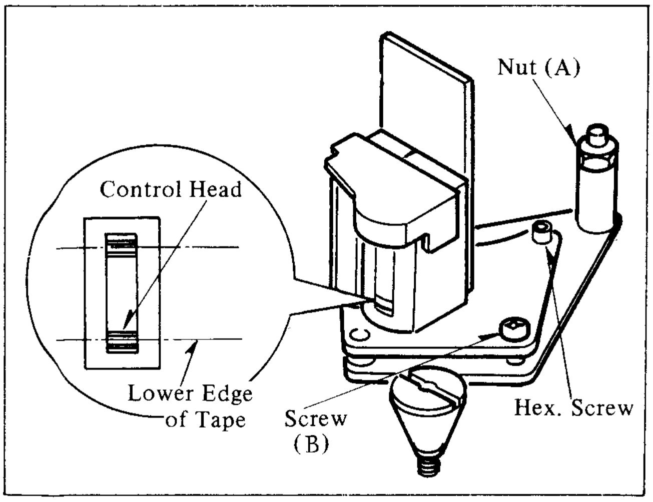

Nut (A)
Control Head
Lower Edge of Tape
Screw (B)
Hex. Screw

Fig. M27. Confirmation of A/C Head Height

10-3. Adjustment of A/C Head Height

1. Connect the oscilloscope to the audio output on the right side of the deck.
2. Playback the monoscope portion (6kHz, Audio) of the alignment tape, VFM8100H3D.

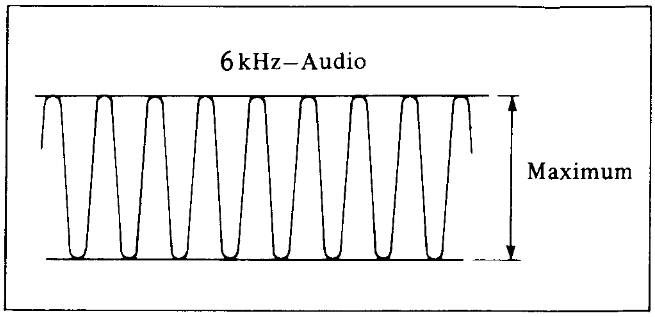

6kHz–Audio
Maximum

Fig. M28. Adjustment of A/C Head Height

3. Adjust the screw (B) on the head base so the output level becomes maximum.

10-4. Confirmation of A/C Head Tilt

Note:
Unless P4 is adjusted, (See Fig. M25) this procedure should not be performed. Playback the tape and confirm that the tape runs between lower and top limiters of the post. If the lower edge or top edge of the tape turns with waving or frilling, then correct the tilt of the A/C Head by turning hex. screw. (A hex. screw is shown in Fig. M27.)

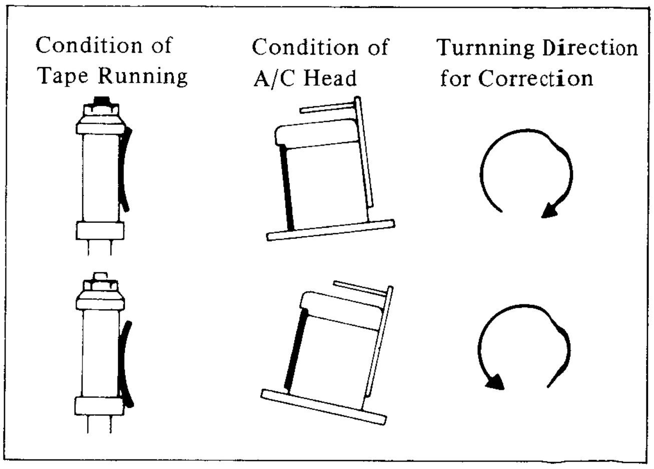

Condition of Tape Running
Condition of A/C Head
Turnning Direction for Correction

Fig. M29. Confirmation of Tilt of A/C Head

10-5. Horizontal Position Adjustment of A/C Head

1. Set the tracking control to the detent (fixed) position. Connect the oscilloscope to the Test Point (TP3009).
2. Playback the monoscope portion of the alignment tape and confirm the envelope figure.
3. If adjustment is required, set the H-position adjustment screwdriver into the slot of the adjustment nut and rotate in either direction to obtain maximum envelope output.

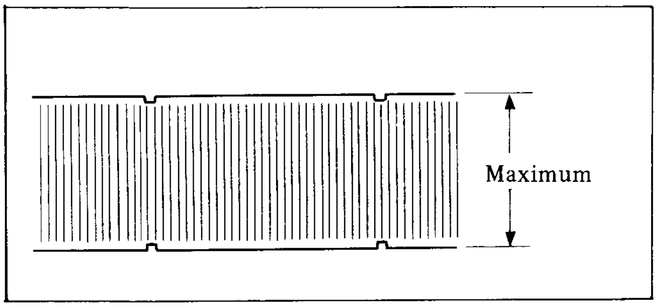


Fig. M30. Horizontal Position Adjustment of A/C Head(1)

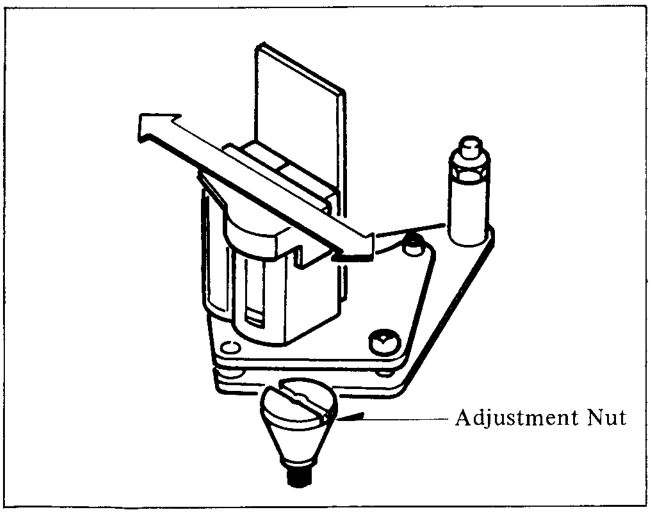

Adjustment Nut

Fig. M31. Horizontal Position Adjustment of A/C Head(2)

10-6. Confirmation/Adjustment of Envelope Output

1. Set the tracking control in the detent (fixed) position. Connect the oscilloscope to Test Point (TP3009).
2. Playback the monoscope portion of the alignment tape VFM8080H2, adjust posts P2 and P3 while watching the scope display so that RF envelope on the scope becomes as flat as possible.

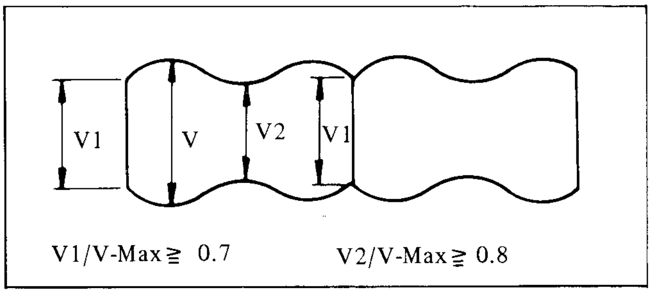

V1
V
V2
V1
V1/V-Max≧ 0.7
V2/V-Max≧ 0.8

Fig. M32. Confirmation of Envelope Output

3. If the scope display is as follows, adjust the height of P2 shown in Fig. M21.

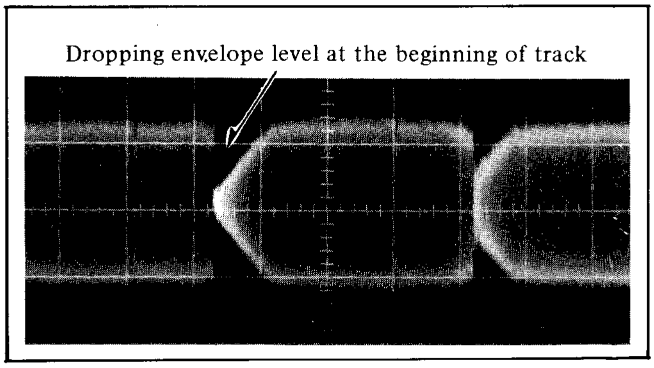

Dropping envelope level at the beginning of track

Fig. M33. Adjustment of Envelope Output–(1)

4. If the scope display is as follows, adjust the height of P3 shown in Fig. M21.

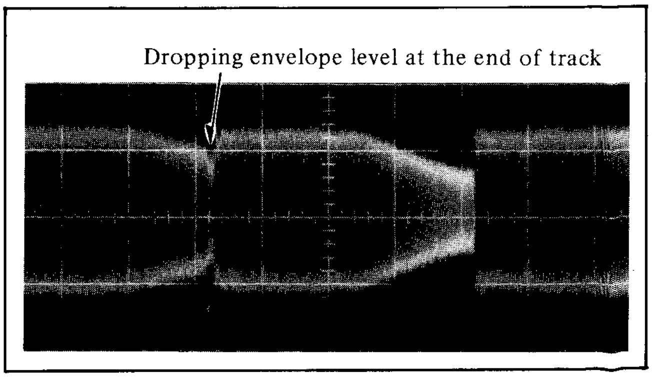

Dropping envelope level at the end of track

Fig. M34. Adjustment of Envelope Output–(2)

5. The scope display with P2 and P3 adjusted correctly should be as shown in Fig. M35.

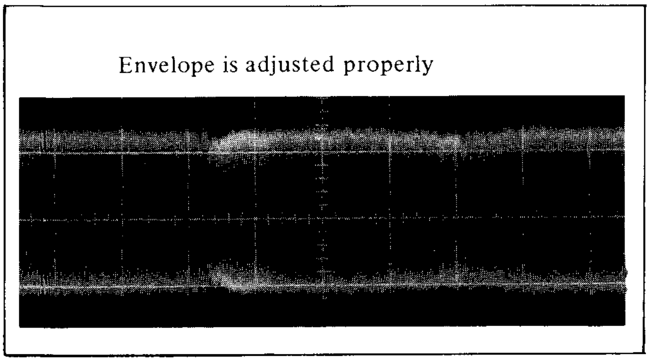

Envelope is adjusted properly

Fig. M35. Adjustment of Envelope Output–(3)

6. When adjustment is required, turn slowly and wait for servo lock. Be sure the tape travels over the post as shown.

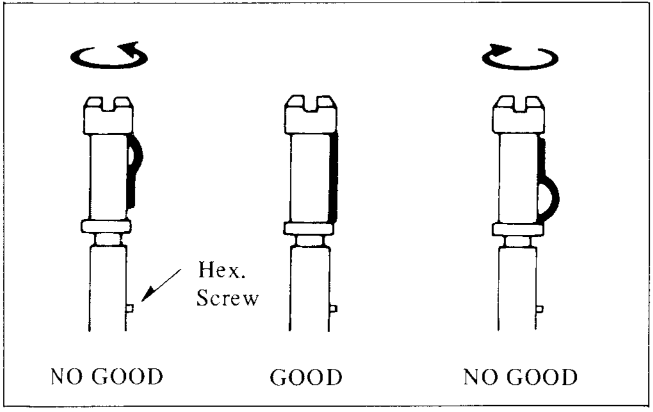

Hex. Screw
NO GOOD
GOOD
NO GOOD

Fig. M36. Adjustment of Envelope Output–(4)

11. TENSION ADJUSTMENT OF TIMING BELT

Equipment Required:
Fan-type Tension Gauge VFK66
Specification: 300 ± 100g

1. Loosen a screw (A), remove the spring (A) and push the Idler Pressure Lever by the fan-type tension gauge.
2. When the gauge reads the specified pressure, tighten a screw (A).
3. Reinstall the spring (A).

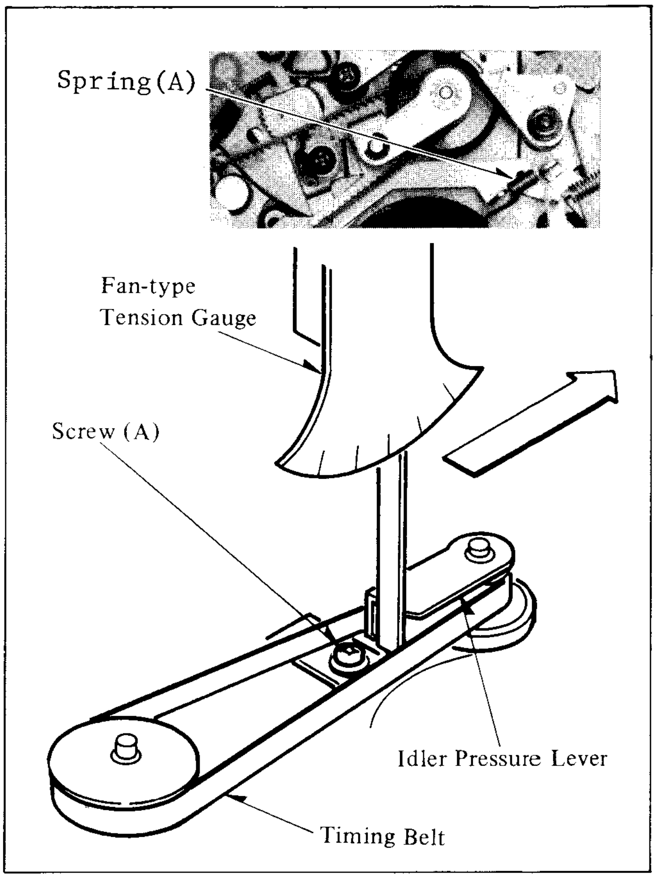

Spring(A)
Fan-type Tension Gauge
Screw (A)
Idler Pressure Lever
Timing Belt

Fig. M37. Tension Adjustment of Timing Belt

12. ADJUSTMENT OF FG HEAD GAP

Equipment Required:
Fine Adjustment Screwdriver VFK0136
Specification: 0.12 ± 0.02mm

1. Remove 2 screws (A) and thrust angle unit, then remove the sub plate, 5 screws (B) and stator unit.

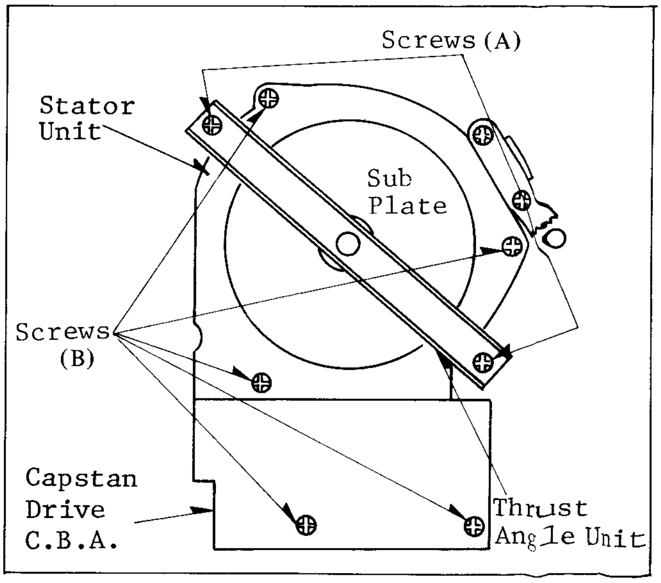

Screws (A)
Stator Unit
Sub Plate
Screws (B)
Capstan Drive C.B.A.
Thrust Angle Unit

Fig. M38. Adjustment of F.G. Head Gap–(1)

2. Slightly loosen the 2 screws (C) and set the fine adjustment screwdriver into the hole (D). Turn screwdriver counterclockwise until the FG head touches the rotor and just slightly turn it clockwise so the gap becomes as specified.

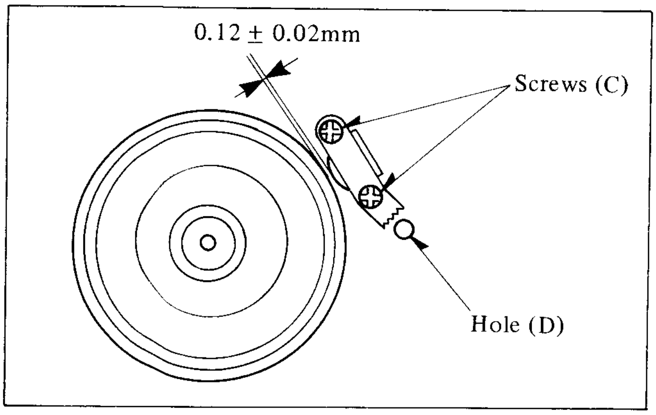

0.12 ± 0.02mm
Screws (C)
Hole (D)

Fig. M36. Adjustment of F.G. Head Gap–(2)

c.f.
Instead of this method, the cover page of this volume can be alternative because the thickness is approx. 0.12mm.

Notes:
1. Do not touch the circumferential surface of rotor with any tool, and keep any magnetizable material away from the rotor magnet.
2. When reinstalling the stator unit, install it concentrically with boss of rotor.

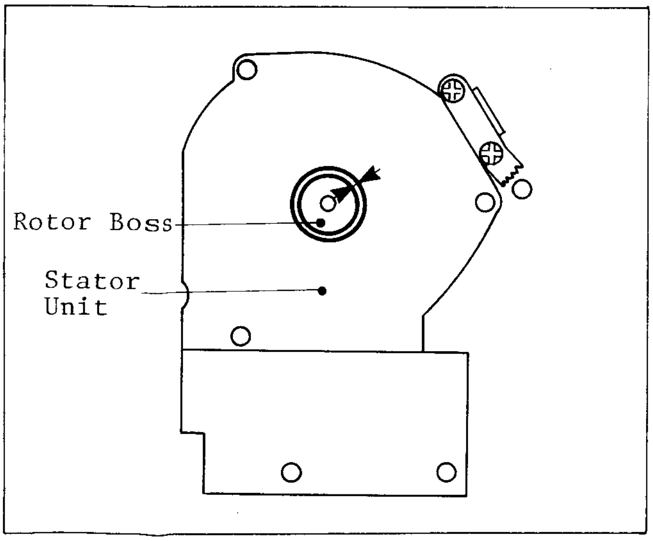

Rotor Boss
Stator Unit

Fig. M40. Adjustment of F.G. Head Gap–(3)

13. CONFIRMATION/ADJUSTMENT OF THRUST GAP

Equipment Required:
Reel Table Height Gauge VFK0190
Specification: 0.01 ∿ 0.10mm
1. Place the height gauge on the thrust angle, and set the gauge to zero "0".
2. Next, push the capstan shaft by your finger, and confirm the thrust gap.
3. If the gap is out of specification, then adjust the thrust boss by turning it clockwise or counterclockwise.

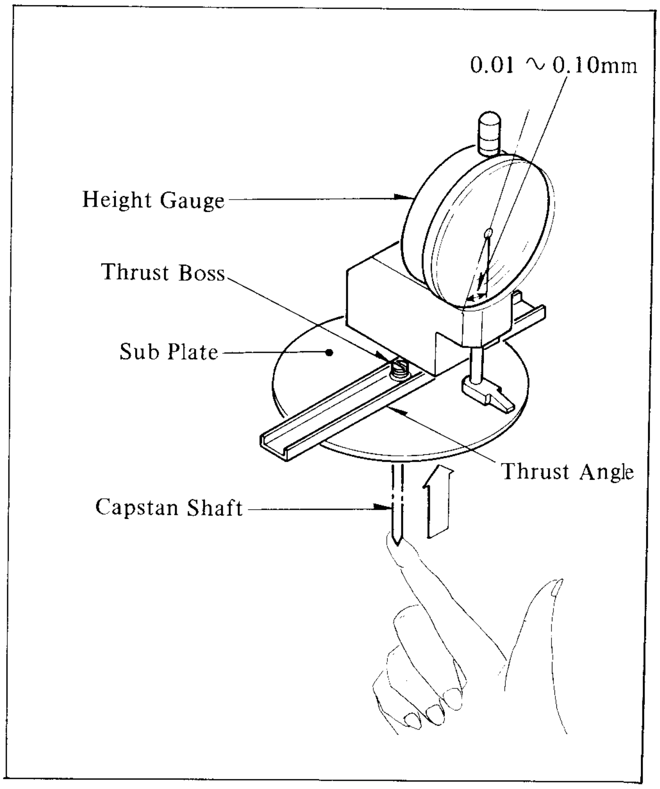

0.01 ∿ 0.10mm
Height Gauge
Thrust Boss
Sub Plate
Thrust Angle
Capstan Shaft

Fig. M41. Confirmation/Adjustment of Thrust Gap–(1)

14. ASSEMBLY AND ADJUSTMENT OF GEARS AND RODS

1. Install the supply and take-up loading arm units so that the projection (A) on the take-up loading gear aligns with the delta "Δ" mark (B) on the supply loading gear.
   Then install the 2 retaining rings. Ensure that the loading arm units is still in the fully unloaded condition.

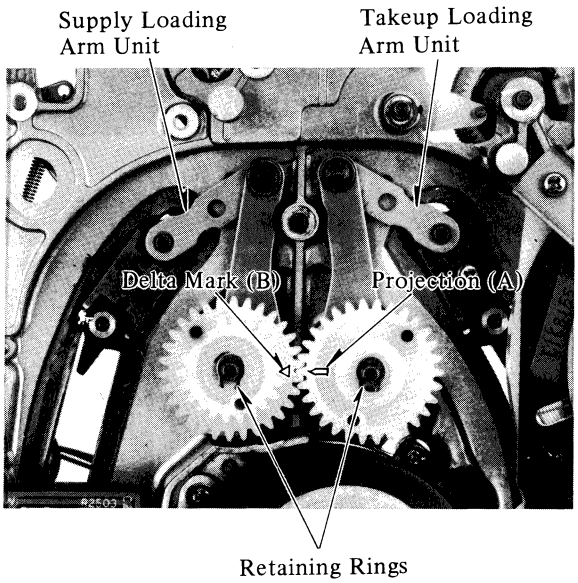

Supply Loading Arm Unit
Takeup Loading Arm Unit
Delta Mark (B)
Projection (A)
Retaining Rings

Fig. M42. Assembly and Adjustment of Gears and Rods–(1)

Note:
Pay attention that the washers are remaining under the loading gears.

2. Install the sector gear (II). Next install the sector gear (III) so that the convex on the sector gear (III) fits in with the concave on the sector gear (II).
   Then install the retaining ring.

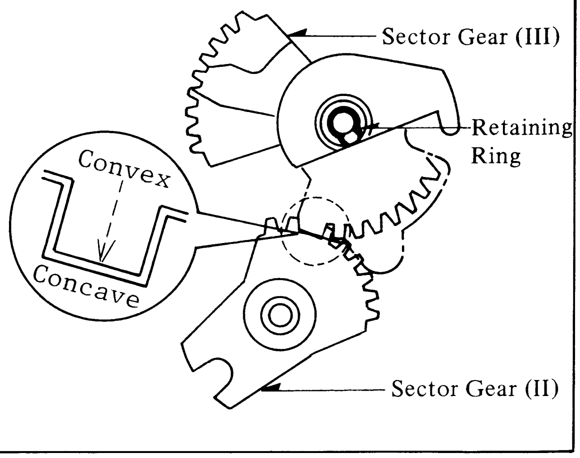

Sector Gear (III)
Retaining Ring
Convex
Concave
Sector Gear (II)

Fig. M43. Assembly and Adjustment of Gears and Rods–(2)

Next, align the delta "Δ" mark (C) on the sector gear (III), rib (D) on the sector gear (II) and the shaft (E) as they are on one line.

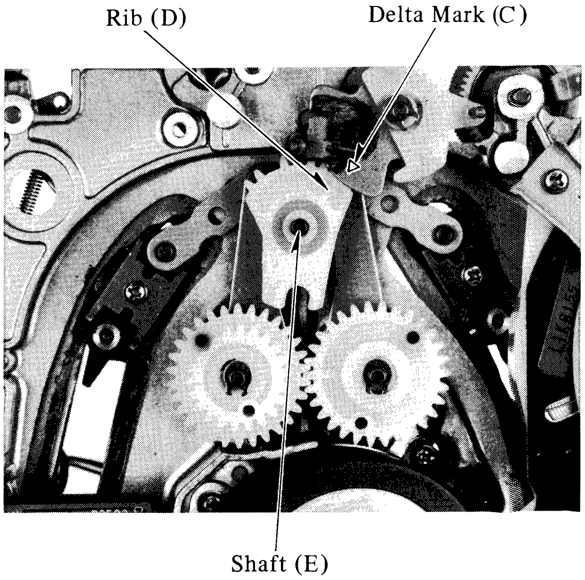

Rib (D)
Delta Mark (C)
Shaft (E)

Fig. M44. Assembly and Adjustment of Gears and Rods–(3)

Then install the sector gear (I) so that the hole (F) on the sector gear (I) aligns with the projection (G) on the supply loading gear.
Then install the retaining ring.

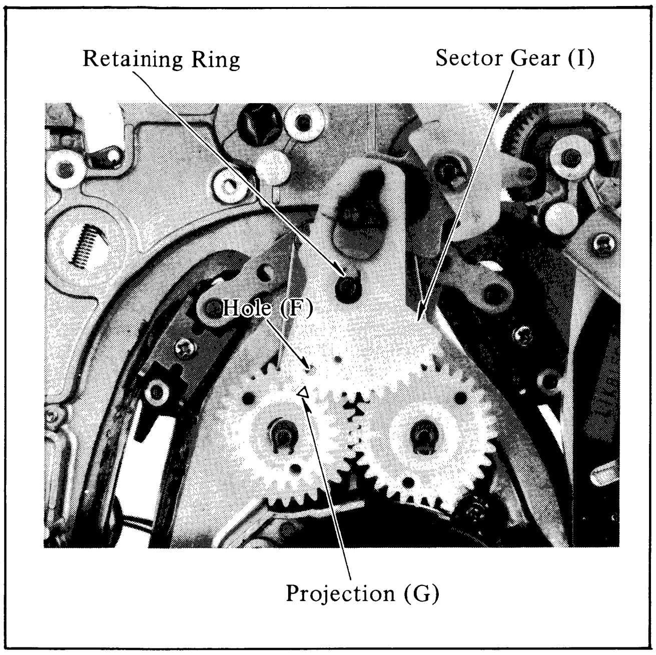

Retaining Ring
Sector Gear (I)
Hole (F)
Projection (G)

Fig. M45. Assembly and Adjustment of Gears and Rods–(4)

3. Install the sub cam gear so that the hole on gear meets the hole on the chassis.

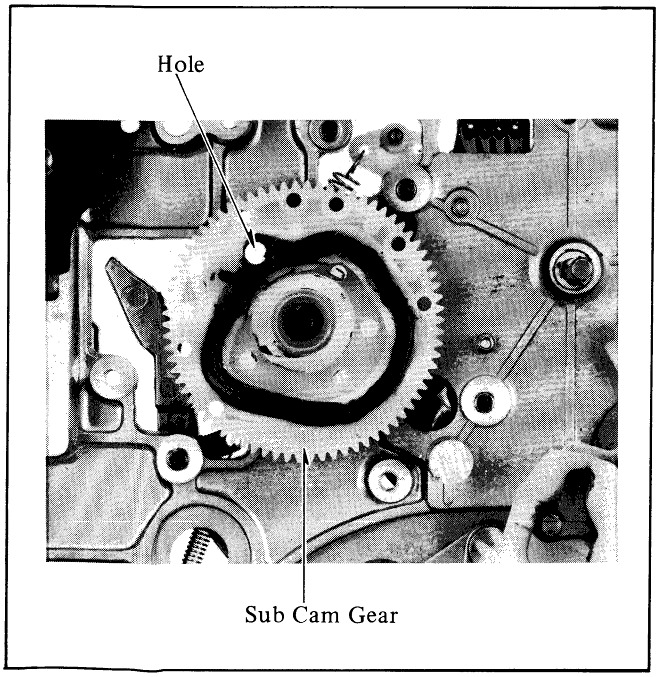

Hole
Sub Cam Gear

Fig. M46. Assembly and Adjustment of Gears and Rods–(5)

4. Install the 4 washers.
And install the sub rod unit so that the pin on the sub rod unit fits into the sub cam gear.

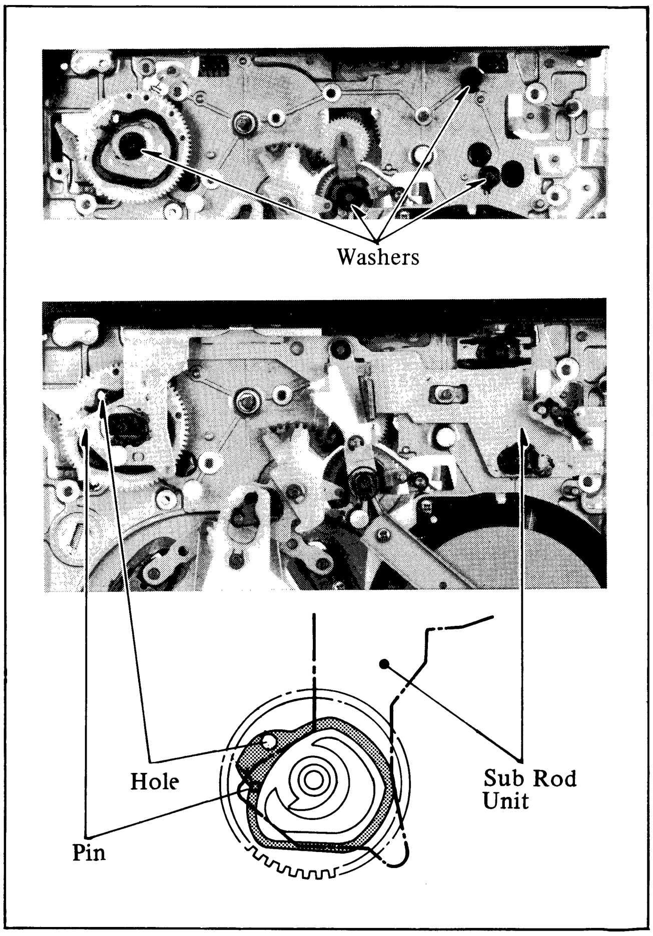

Washers
Hole
Pin
Sub Rod Unit

Fig. M47. Assembly and Adjustment of Gears and Rods–(6)

Then install the 4 washers, 2 retainings and 2 springs (H).

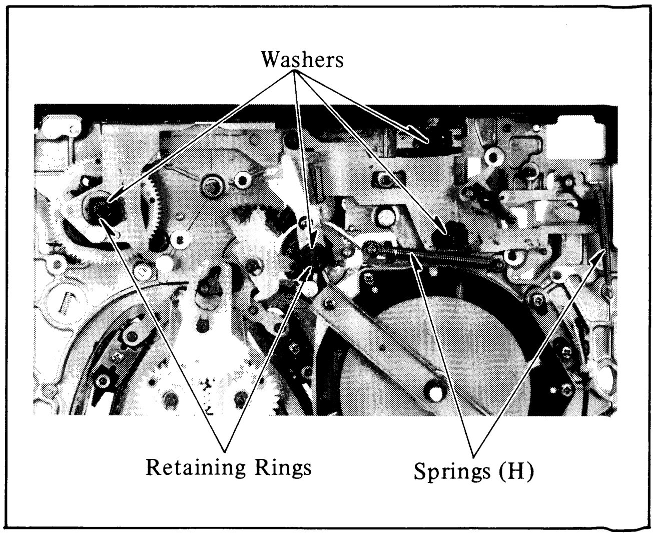

Washers
Retaining Rings
Springs (H)

Fig. M48. Assembly and Adjustment of Gears and Rods–(7)

5. Confirm the sub cam gear is keeping the condition described in step 3. Then, install the main cam gear so that the hole (J) on the main cam gear aligns with the hole (K) on the sub cam gear.
   And install the washer.

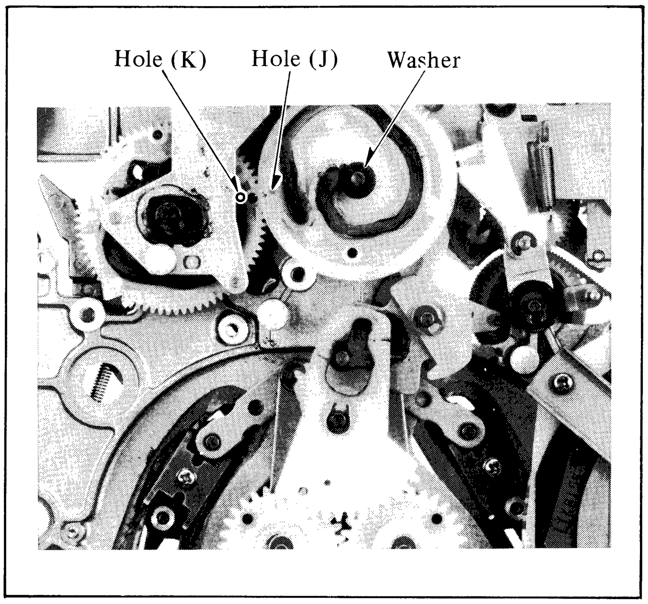

Hole (K)
Hole (J)
Washer

Fig. M49. Assembly and Adjustment of Gears and Rods–(8)

6. Install the main rod unit so that the pin (L) on the main rod unit fits into the part (M) on the sub rod unit.
   Then install 3 washers and 4 retaining rings.

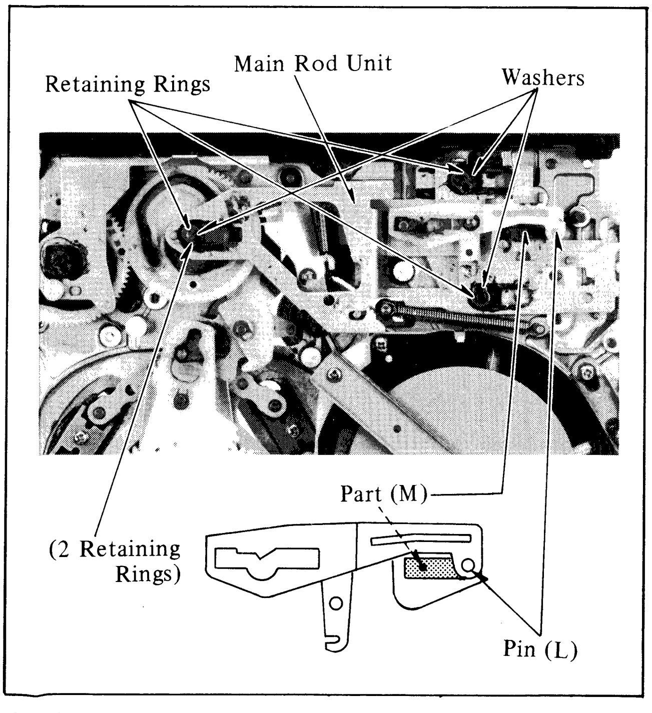

Retaining Rings
Main Rod Unit
Washers
Part (M)
(2 Retaining Rings)
Pin (L)

Fig. M50. Assembly and Adjustment of Gears and Rods–(9)

7. Confirm the sub cam gear is keeping the condition described in step 3. Then, install the eject stopper unit, screw (N), spring (P), eject kick lever unit, retaining ring and spring (Q).

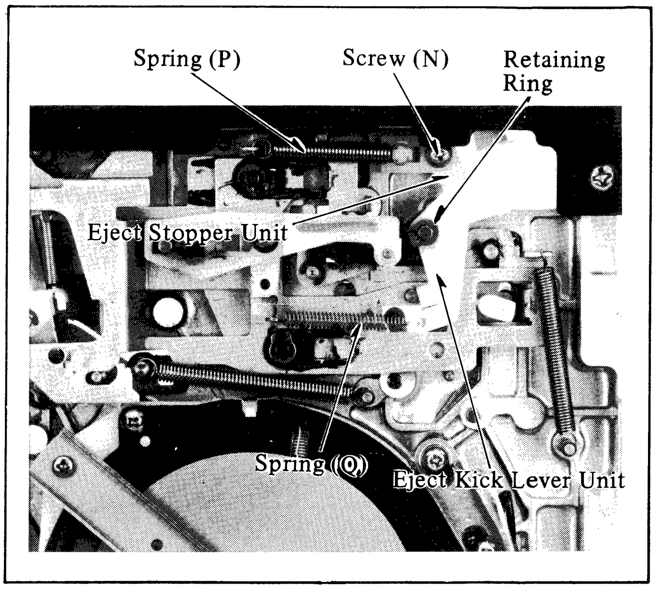

Spring (P)
Screw (N)
Retaining Ring
Eject Stopper Unit
Spring (Q)
Eject Kick Lever Unit

Fig. M51. Assembly and Adjustment of Gears and Rods–(10)

Note:
Do not transform the springs when installing them.

8. Confirm the sub cam gear is keeping the condition described in step 3. Rotate the gear on the rotary switch so that it becomes click (detent) position, then install the switch with 2 screws (R).

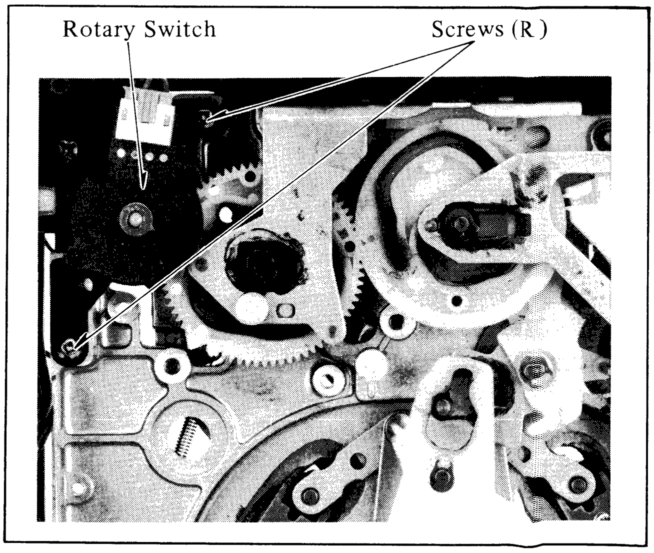

Rotary Switch
Screws (R)

Fig. M52. Assembly and Adjustment of Gears and Rods–(11)

Note:
There is one click point per 4 rotations.

9. Rotate the sub cam gear counterclockwise by your finger and make short loading.
   Then rotate it clockwise till the deck becomes the STOP condition.
   Then, install the loading motor with 3 screws (S) and connect the connector.

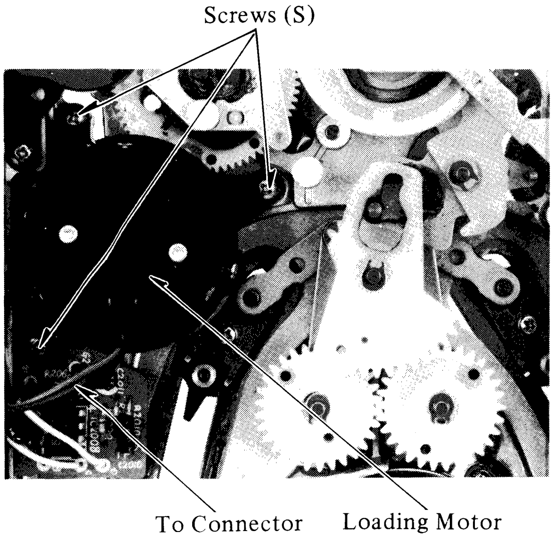


Fig. M53. Assembly and Adjustment of Gears and Rods–(12)

15. POSITION ADJUSTMENT OF CASSETTE UP HOLDER

Equipment Required:
Cassette Holder Fixture VFK0240

1. Supply power to the deck and make EJECT condition. Then turn power off.
2. Remove 2 screws (A) and loosen 4 screws (B).
3. Insert the fixture and push it all the way in until it touches the tabs on the cassette holder.
   Hold the fixture and cassette holder together with your hand, then slowly lower it while watching all holes and cut-outs until the cassette holder latches.
4. Press the center portion of the fixture and adjust the position so as to clear the reels, then tighten 4 screws (B). And tighten 2 screws (A).
5. Supply power again and ensure smooth movement by repeatedly pressing down and ejecting the cassette holder.

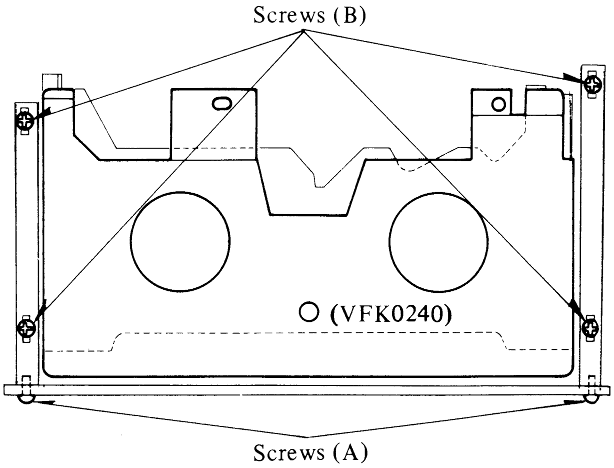


Fig. M54. Position Adjustment of Cassette Up Holder

16. ADJUSTMENT OF LEAF SWITCHES

Equipment Required:
Leaf Switch Adjustment Fixture
.... VFK0239
Fine Adjustment Screwdriver
.... VFK0136

1. Remove the Cassette Up Protector (plastic cover) on the leaf switches.
2. Set the fixture to the lock roller pin and lower edge of cassette up holder.
3. Slightly loosen screw (A) and insert the adjustment screwdriver to the hole (B).
4. Adjust the gap (C) so that the up lever and down lever just touches with leaf switches by turning adjustment screwdriver, then tighten screw (A).
5. Upon completion of adjustment, confirm the condition of leaf switches. (See Fig. M56.)

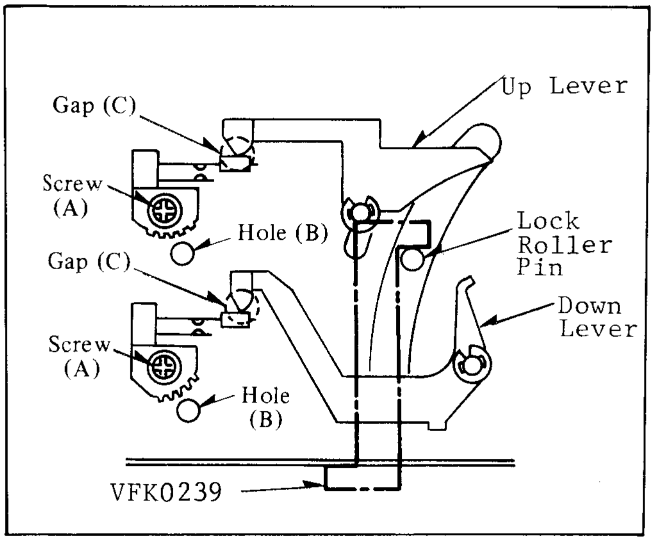

Gap (C)
Up Lever
Screw (A)
Hole (B)
Lock Roller Pin
Gap (C)
Down Lever
Screw (A)
Hole (B)
VFK0239

Fig. M55. Adjustment of Leaf Switches

Leaf Switches Cassette Up Holder	Up Side Leaf Switch	Down Side Leaf Switch
UP	ON	ON
DOWN	OFF	ON

Fig. M56. Confirmation of Leat Switch

17. POSITION ADJUSTMENT OF RECORDING SAFETY SWITCH

Equipment Required:
Cassette Holder Fixture VFK0240
Hex. Wrench (0.9mm) VFK0146

1. Place the fixture in place over the reel tables.
2. Insert the hex. wrench into the hex. screw. Turn hex. wrench in either direction till the switch closes.

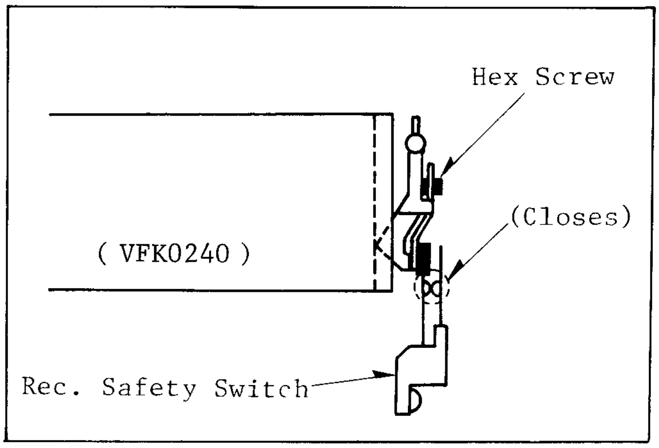

Hex Screw
(Closes)
(VFK0240)
Rec. Safety Switch

Fig. M57. Position Adjustment of Recording Safety Switch-(1)

Note:
When cassette with an erase tab is used, the switch closes, and without a tab, it opens.

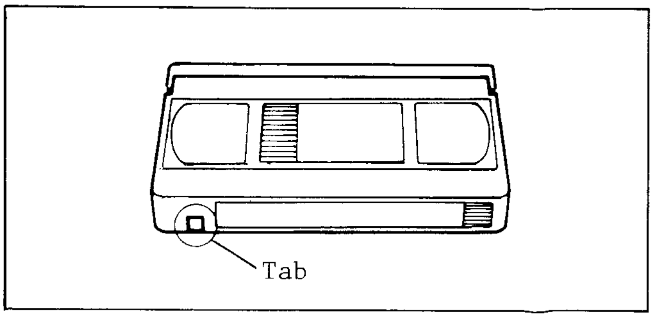
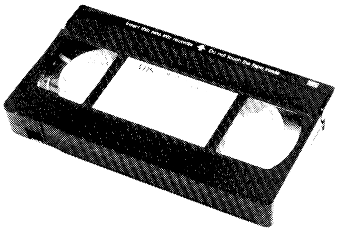


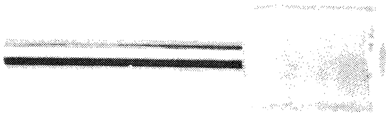
Fig. M58. Position Adjustment of Recording Safety Switch-(2)

Servicing Fixtures & Tools

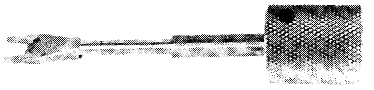
VFM8100H3D VHS Alignment Tape



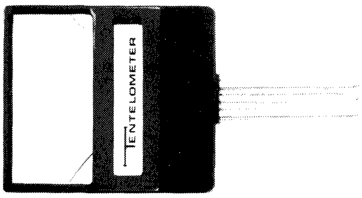
VFK0137 Post Adjustment Screwdriver



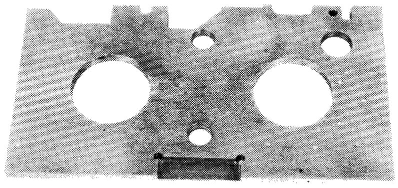
VFK0189 H-Position Adj Fixture



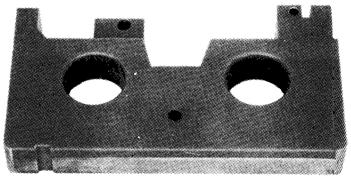
Back Tension Meter
(Tentelometer, Made in U.S.A.)



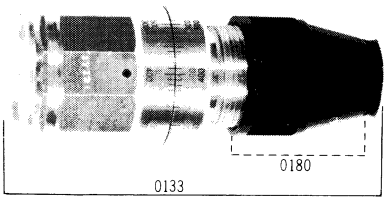
VFK0191 Post Adjustment Plate



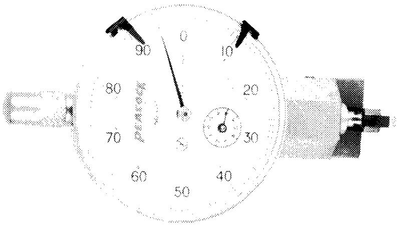
VFK0240 Cassette Holder Fixture



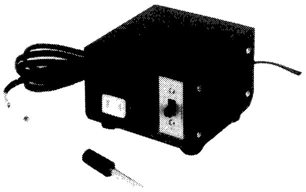
VFK0133 Dial Torque Gauge
VFK0180 (Plastic Clamper Only)



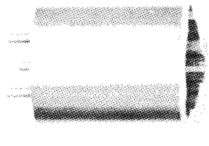
VFK0190 Reel Table Height Fixture



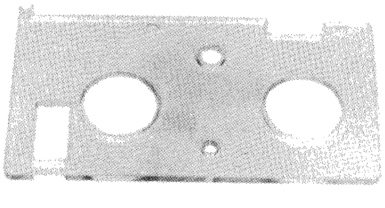
VFK0248 Solder Iron
VFK0249 Transformer



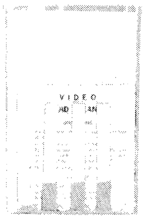
VFK0134 Adaptor for VFK0133



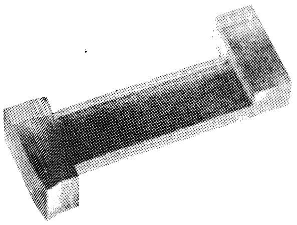
VFK0241 Tension Post Adj. Plate



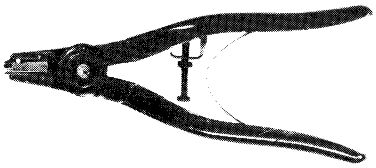
VFK27 Head Cleaning Stick



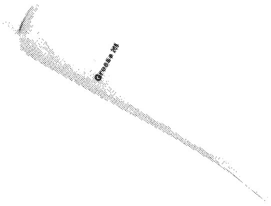
VFK0239 Leaf Switch Adj. Fixture



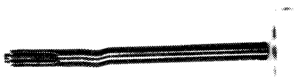
VFK0144 Retaining Ring Remover (3mmφ)



MOR265 Morlytone Grease

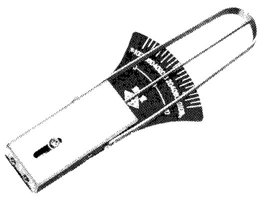


VFK0136 Fine Adjustment Screwdriver (3mmφ)



VFK0146 Hex. Wrench (0.9mm)
VFK76 Hex. Wrench (1.5mm)

VFK66 Fan-type Tension Gauge



ELECTRICAL ADJUSTMENT PROCEDURES

This section provides complete electrical adjustment procedures which may be required for electric circuits of portable VHS video cassette recorder.

1. TEST EQUIPMENT

To perform the electrical adjustments completely, the following equipment is required.

1. DVM (Digital Volt Meter)
   Voltage Range: 0.001 - 50V
2. Dual-trace Oscilloscope
   Voltage Range : 0.05 - 50V/Div.
   Frequency Range: DC - 10MHz
   Probes: 10:1, 1:1
3. Frequency Counter
   Frequency Range: 0 - 10MHz
4. Signal Generator
   Sinewave: 0 - 10MHz
5. Sweep Generator
   Frequency Range: 0 - 10MHz
6. Color TV Receiver or Monitor
7. Plastic Tip Driver
8. VHS Alignment Tape
   VFM8100H3D

2. ADJUSTMENT PROCEDURES

Note: Components and Test Points in each section are series numbers. But for, easy alignment only the last numbers are used on P.C. Board.

These adjustment procedures consist of the following sections.

	SERIES
1. A.V.R. Section	1000
2. System Control Section	6000
3. Servo Section	2000
4. Audio Section	4000
5. Video Section .. Luminance .	3000
Chrominance	8000

2-1. A.V.R. Section

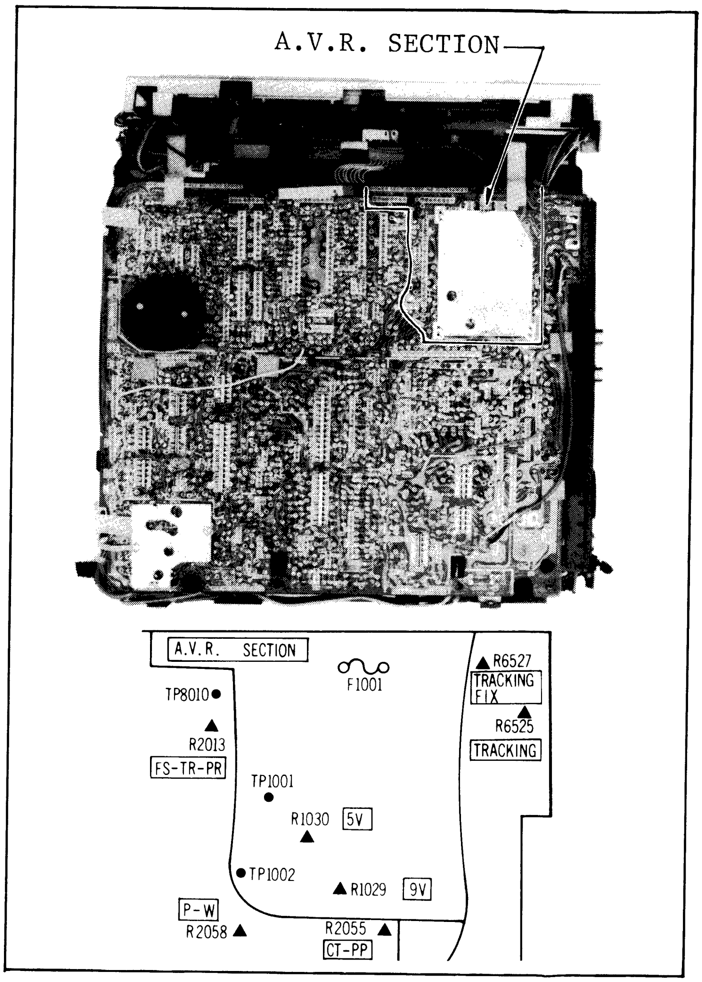


Fig. E1

2-1-1. +9V, +5V Regulator Adjustment

Test Points: TP1001, TP1002
Adjustments: R1029 (+9V), R1030 (+5V)

1. Connect the Multi-Connector to the deck so that +12V ± 0.5V is supplied to the deck.
2. Place the deck in PLAY mode.
3. Connect the DVM to TP1001 on the A.V.R. Section .
4. Adjust the +9V ADJ. (R1029) on the same section so that the voltage at TP1001 is 9.1 ± 0.1V DC. Remove the DVM.
5. Connect the DVM to TP1002 on the same section.
6. Adjust the +5V ADJ. (R1030) on the same section so that the voltage at TP1002 is 5.1 ± 0.1V DC.
7. Remove the DVM.

2-2. System Control Section

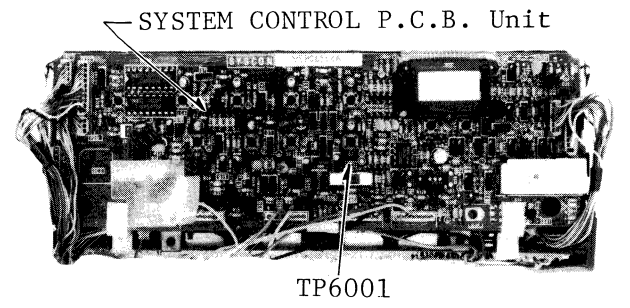

SYSTEM CONTROL P.C.B. Unit
TP6001

Fig. E2

2-2-1. Under Cut Voltage Adjustment

Test Point: TP6001
Adjustment: R6088 (UNDER CUT)

1. Do not supply any video and audio signals to the deck.
2. Do not connect the Multi-Connector to the deck.
3. Turn the UNDER CUT (R6088) on the System Control Board fully counter-clockwise from parts side.
4. Set the DC Voltage Regulator output voltage to +12 ± 0.1V DC, and this output voltage connects to the battery terminal of the deck.

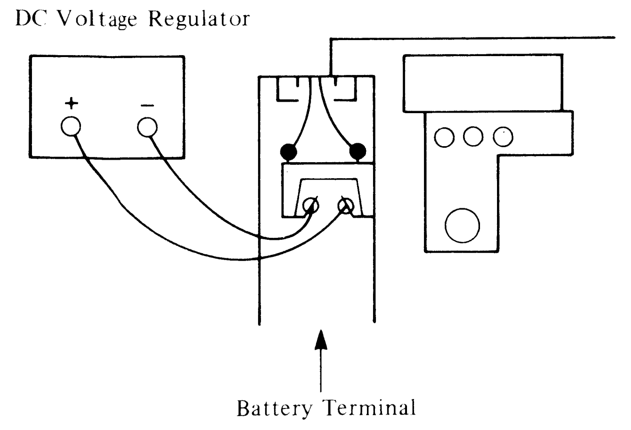

DC Voltage Regulator
+
−
Battery Terminal

Fig. E3

5. Connect the scope to TP6001 on the same board and connect the DVM to the battery terminal of the deck.
6. Turn the power switch of the deck to on.
7. Insert a cassette and place the deck in Rec•Play mode.
8. Adjust the DC Voltage Regulator so that the voltage is 10.6 ± 0.1V DC.
9. Then, slowly turn the UNDER CUT (R6088) clockwise till the DC voltage change from High to Low at TP6001.
10. Confirm that the " b " mark is indicated (flash) on the LCD counter for 3sec. Then the power switch of the deck is automatically turned OFF.

2-3. Servo Section

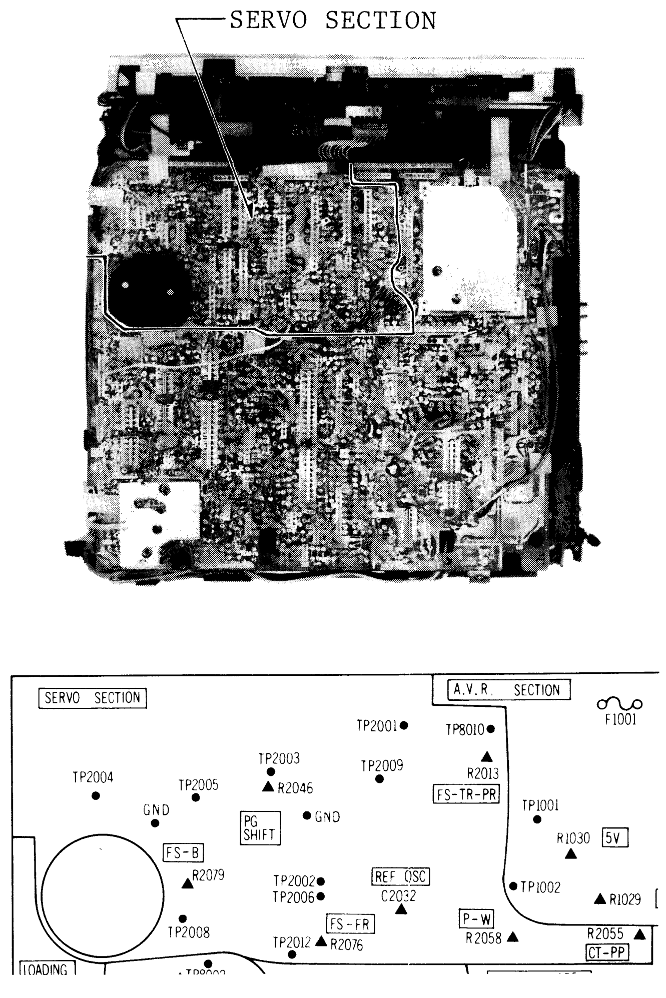

SERVO SECTION
SERVO SECTION
A.V.R. SECTION
F1001
TP2001
TP8010
TP2003
TP2009
R2013
TP2004
TP2005
R2046
FS-TR-PR
GND
PG SHIFT
GND
TP1001
R1030
5V
FS-B
R2079
TP2002
TP2006
REF OSC
C2032
TP1002
R1029
P-W
FS-FR
TP2008
TP2012
R2076
R2058
R2055
CT-PP
LOADING

Fig. E4

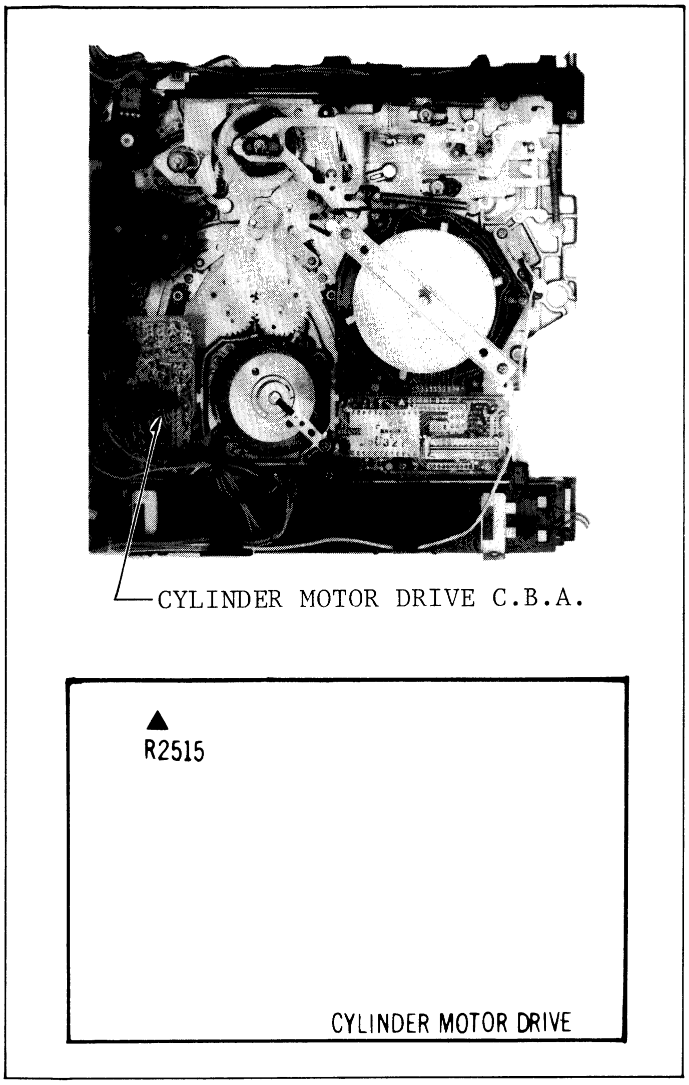

CYLINDER MOTOR DRIVE C.B.A.
R2515
CYLINDER MOTOR DRIVE

Fig. E5

2-3-1. 4.43MHz Crystal Oscillator Adjustment

Test Point: TP2006
Adjustment: C2032 (4.43MHz OSC)

1. Do not supply any video signal to the video input on the right side panel.
2. Supply +12V DC voltage, but do not use the Tuner unit.
3. Set the deck in STOP mode.
4. Connect the frequency counter to TP2006 on the Servo section.
5. Adjust the 4.43MHz OSC (C2032) on the same section so that the frequency is 4433619 ± 20Hz.

2-3-2. PG Shifter Adjustment

Test Points: TP2003, TP3008
Adjustment: R2046 (PG SHIFT)

1. Playback the alignment tape. (VFM8100H3D).
2. Connect the scope CH1 to TP2003 on the Servo section and CH2 to TP3008 on the Luminance section. Use TP2003 to trigger the scope.
3. Set the scope to the CHOP mode, then expand the V-Sync portion.
4. Adjust PG SHIFT (R2046) on the Serve section so that the head switching point becomes 6H ± 1H before the start of V-Sync portion.
5. Change the slope selector on the scope from "+" to "-" and make sure that the difference between rising edge and falling edge is less than 10μsec.

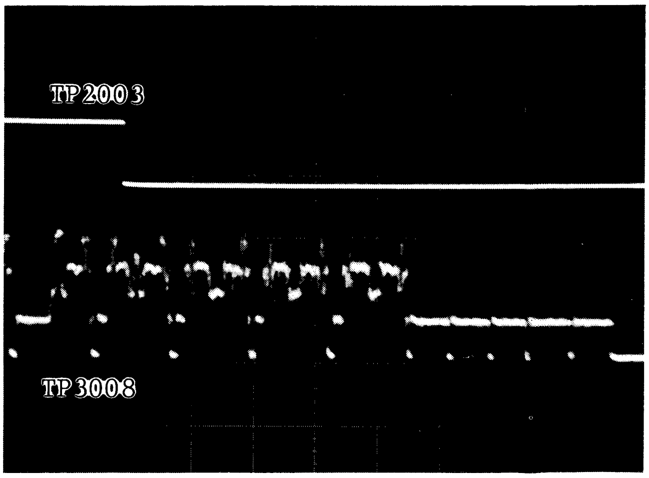


Fig. E6 (Up) 5V/50μsec.div.
(Down) 1V/50μsec.div.

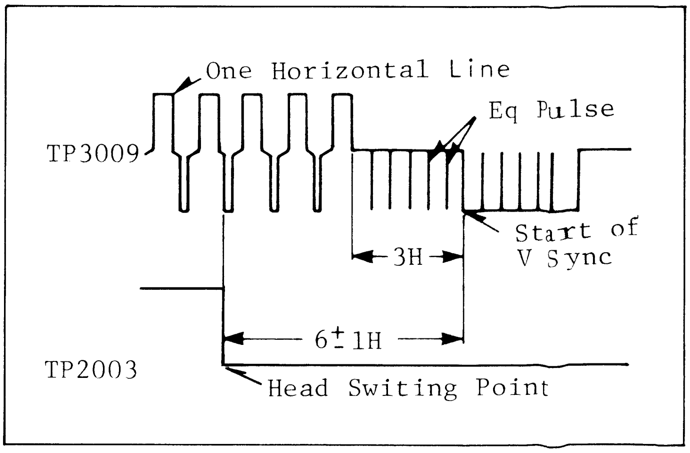

One Horizontal Line
Eq Pulse
TP3009
Start of V Sync
3H
6±1H
TP2003
Head Switing Point

Fig. E7

2-3-3. Tracking Fix Adjustment

Test Points: TP2003, TP2005
Adjustment: R6526 (TRACKING FIX)

1. Supply video signal to the video input on the right side panel of the deck and make a recording for a few minutes.
2. Playback the just recorded portions, and connect the scope CH1 to TP2003 and CH2 to TP2005 both on the Servo section.
3. Set the scope to CHOP mode, and adjust TRACKING FIX (R6526) on the same section so that the "T" period becomes 0.4 ± 0.4msec.

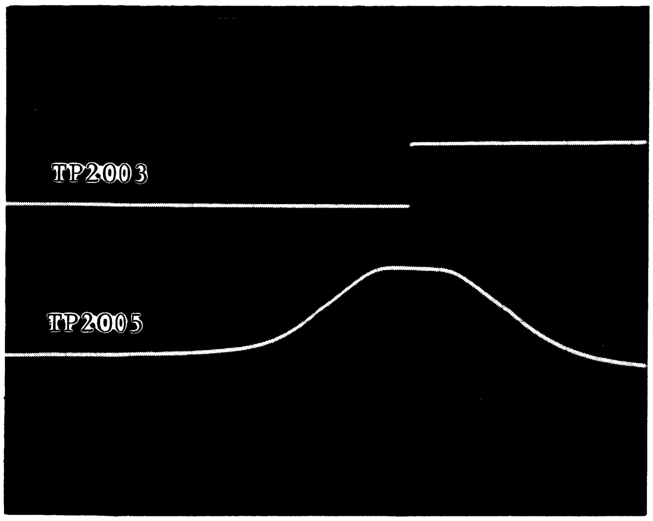


Fig. E8 (Up) 5V/0.1sec.div.
(Down) 1V/0.1sec.div.

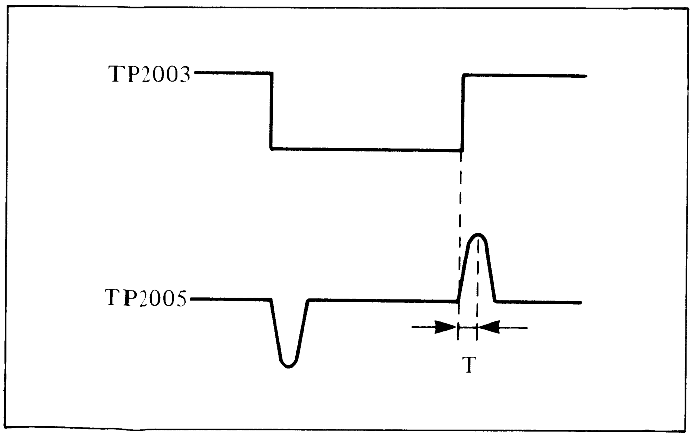


Fig. E9

2-3-4. Fine Slow Brake Adjustment

Test Points: TP2007, TP2008, TP2011
Adjustment: R2079 (F.S.B)

* Note Do not remove P23 connector on the System Control P.C.Board Unit.

1. Supply video signal to the video input on the right side panel of the deck, and make a recording for a few minutes.
2. Connect the scope CH1 to TP2008, CH2 to TP2011 and EXT TRIG to TP2007 on the Servo section.
3. Set the scope to CHOP mode, and playback the just recorded portions.
4. Press the Slow button and adjust F.S.B (R2079) on the same section so that the FG pulse is disappeared in "T" period, as shown below.

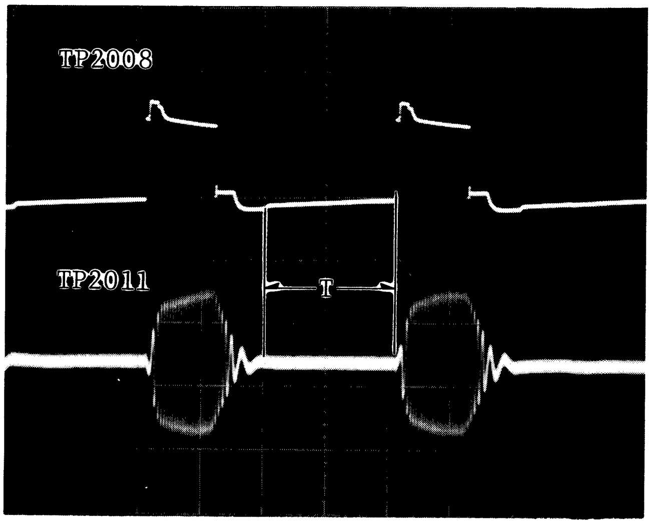


Fig. E10 (Up) 1V/50msec.div.
(Down) 50mV/50msec.div.

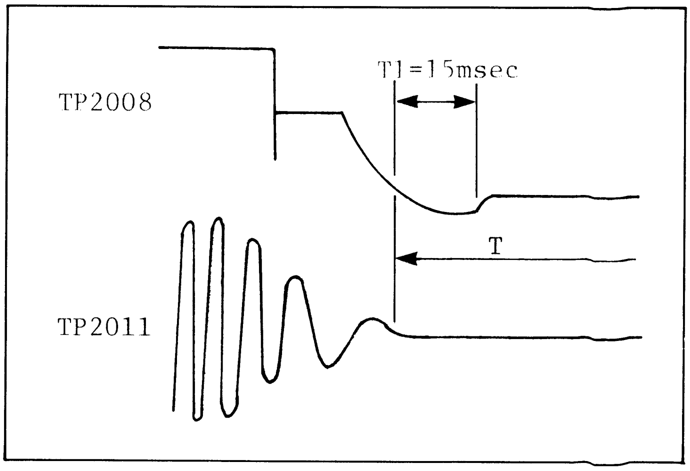


Fig. E11

2-3-5. Artificial V-Sync Adjustment

Test Points: TP2003, TP2012
Adjustments: R2055 (V-A), R2058 (V-B)

1. Supply video signal to the video input on the right side panel of the deck and make a recording for a new minutes.
2. Connect the scope CH1 to TP2003 and CH2 to TP2012 both on the Servo section.
3. Playback the just recorded portions and press the Pause button.
4. Adjust V-B (R2058) and V-A (R2055) both on the same section so that the waveforms are as shown in Fig. E12 .
5. If V-dancing is appeared on the TV monitor after adjustment, then slowly turn the R2055 till the V-dancing is disappeared.

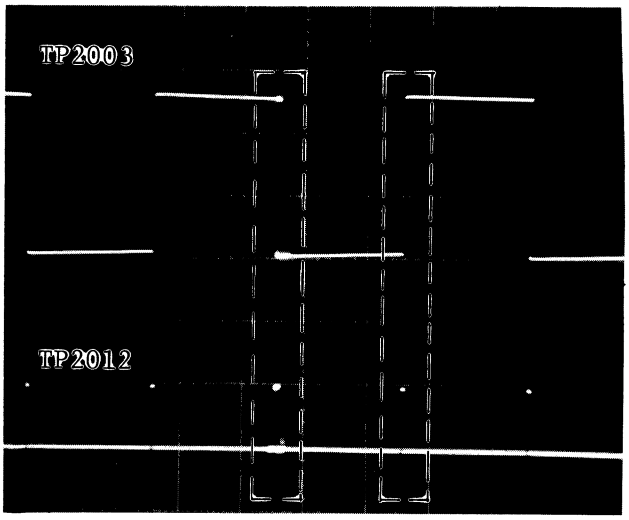
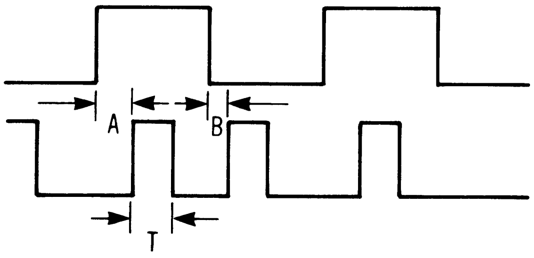


Fig. E12 (Up) 2V/10msec.div.
(Down) 2V/10msec.div.



T = 420 ± 20μsec (R2058)
A = 185 ± 40μsec
B = A + 96 ± 10μsec (R2055)

Fig. E13

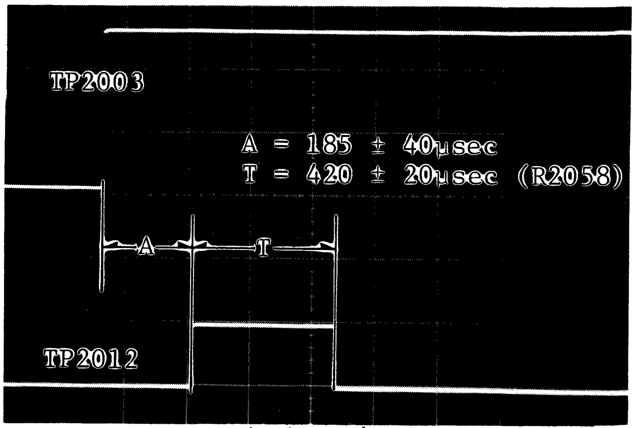


Fig. E14 (Up) 2V/0.2msec.div.
(Down) 2V/0.2msec.div.

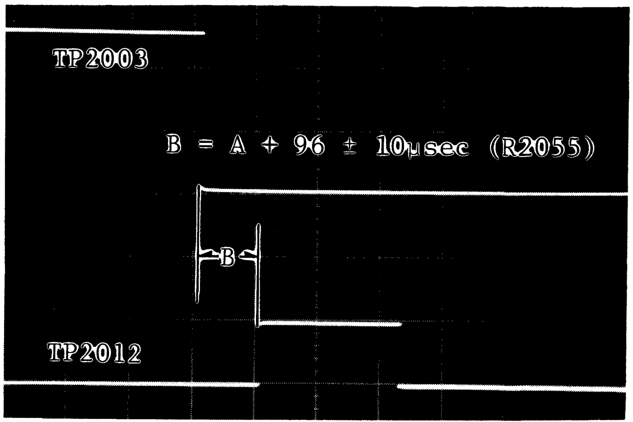


Fig. E15 (Up) 2V/0.2msec.div.
(Down) 2V/0.2msec.div.

2-3-6. Adjustments of Fine Slow Speed and Fine Slow Tracking

Test Point: Pin (17) of IC2001
Adjustments: R2013 (F.S. TR)
R2067 (F.S.S.)

1. Supply colour bar signal to the video input on the right side panel of the unit, and make a recording for a few minutes.
2. Playback the just recorded portions, and disconnect the P6023 connector P6023 for Slow Tracking VR on the System Control P.C.B.
3. Connect the frequency counter to pin (17) of IC2001 in the Servo section and press the SLOW button on the System Control P.C. Board.
4. Adjust F.S.S. (R2067) on the Servo section so that the indication of frequency counter becomes 492Hz ± 2Hz.
5. Again connect the connector P6023 for Slow Tracking VR and set the Slow Tracking VR on the front panel to center detent position.
6. Adjust F.S.TR (R2013) on the Servo section so that the noise band on the TV monitor becomes minimum.

2-4. Audio Section

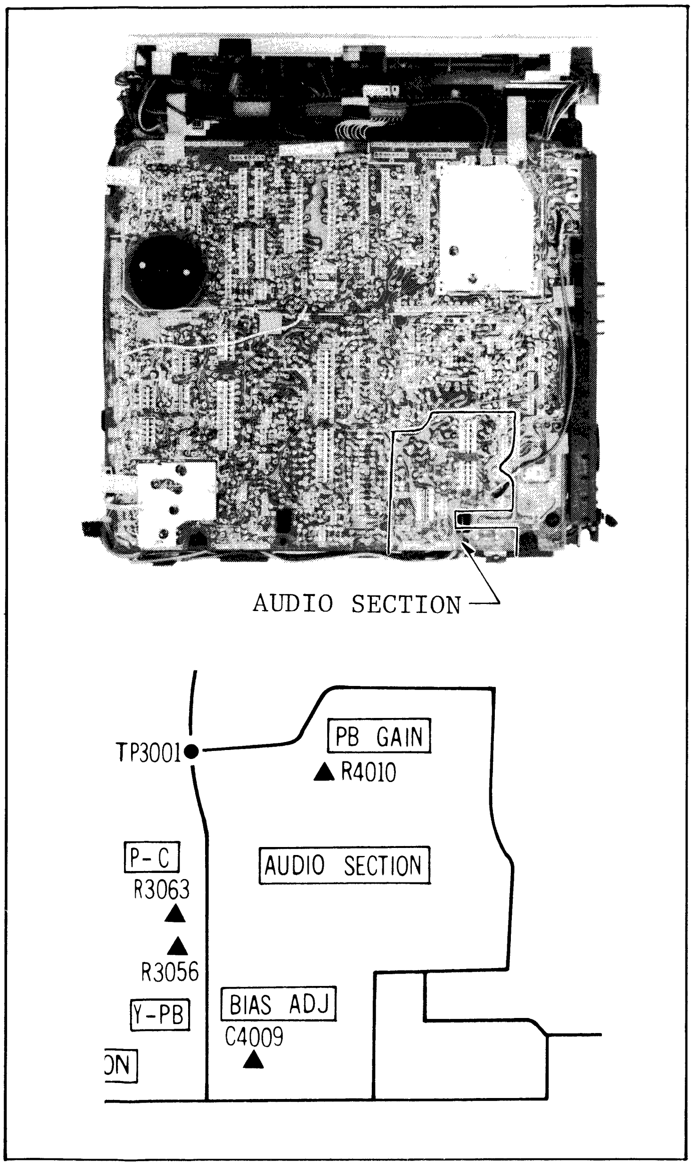

AUDIO SECTION
TP3001
PB GAIN
R4010
AUDIO SECTION
P-C
R3063
R3056
Y-PB
BIAS ADJ
C4009

Fig. E16

2-4-1. Bias Current Adjustment

Test Points: A/C Head Test Pins
Adjustment: C4009 (BIAS CURR)

1. Do not supply any audio signal to the deck.
2. Connect the DVM between A/C Head Test Pins.
3. Place the deck in REC.PLAY mode, and adjust BIAS OSC (C4009) on the Audio section so that the indication of DVM is 4.1mVrms ± 0.1mVrms.

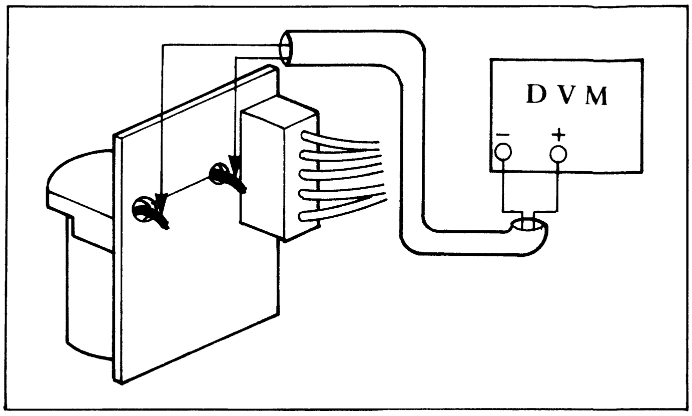


Fig. E17

2-4-2. Audio Playback Gain Adjustment

Test Point: LINE OUT connector
Adjustment: R4010 (P.B. GAIN)

1. Connect the Audio Connector (Supplied Accessory: VJP1164) as shown below.

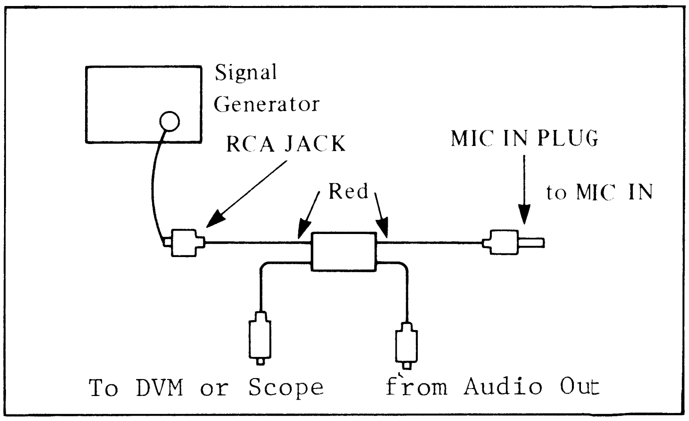

Signal Generator
RCA JACK
Red
MIC IN PLUG
to MIC IN
To DVM or Scope
from Audio Out

Fig. E18

2. Set the Sine Wave Generator output so that the indication of D.V.M. becomes 200mVrms in Rec.Play mode.
3. Make a recording for a few minutes.
4. Playback the just recorded portions, and adjust P.B. Gain (R4010) on the Audio section so that the level of audio line output is 200mVrms (565 mVp-p).

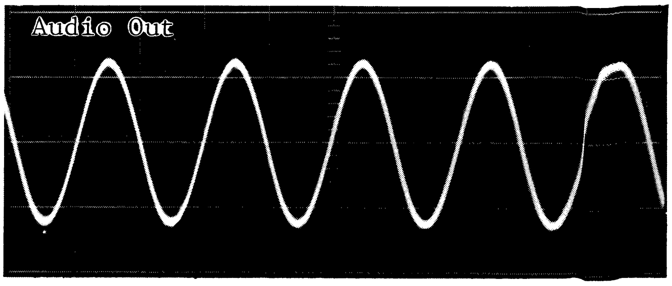


Fig. E19 0.2V/0.5msec.div.

2-5. Video Section

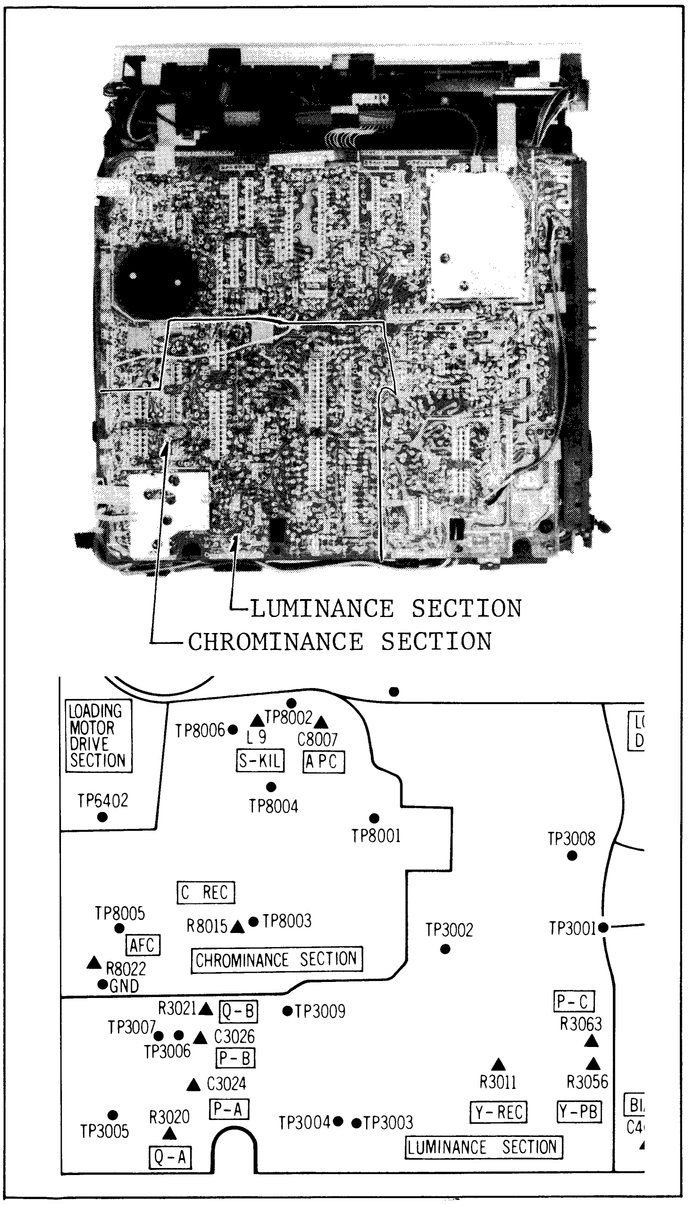

LUMINANCE SECTION
CHROMINANCE SECTION
LOADING MOTOR DRIVE SECTION
TP8006
TP8002
L 9
C8007
S-KIL
APC
TP6402
TP8004
TP8001
TP3008
C REC
TP8005
R8015
TP8003
AFC
R8022
CHROMINANCE SECTION
GND
TP3002
TP3001
R3021
Q-B
TP3009
P-C
TP3007
C3026
R3063
TP3006
P-B
C3024
R3011
R3056
TP3005
R3020
P-A
TP3004
TP3003
Y-REC
Y-PB
Q-A
LUMINANCE SECTION

Fig. E20

2-5-1. AFC Adjustment

Test Point: TP8005

Adjustment: R8022 (AFC)

1. Do not supply any video signal to the deck, and place the deck in REC.PLAY mode.
2. Connect the frequency counter to TP8005 on the Chrominance section.
3. Adjust AFC (R8022) on the same section so that the frequency is 15.625 ± 0.05kHz.

2-5-2. APC Adjustment

Test Point: TP8001

Adjustment: C8007

1. Do not supply any video signal to the deck, and place the deck in REC.PLAY mode.
2. Connect the jumper wire between TP8002 and GND through the 10kΩ resistor. Connect the jumper wire between TP8004 and GND. There are on the Chrominance section.
3. Connect the frequency counter to TP8001 on the same section.
4. Adjust APC (C8007) on the same section so that the frequency is 4433619 ± 50Hz.

2-5-3. SECAM Killer Adjustment (For NV-100EG)

Test Point: TP8006

Adjustment: L8009 (SECAM KILL)

1. Supply SECAM colour bar signal to the video input on the right side panel of the deck, and place the deck in REC.PLAY mode.
2. Connect the scope to TP8006 on the Chrominance section.
3. Adjust SECAM KILL (L8009) on the same section so that the waveform at TP8006 becomes maximum.

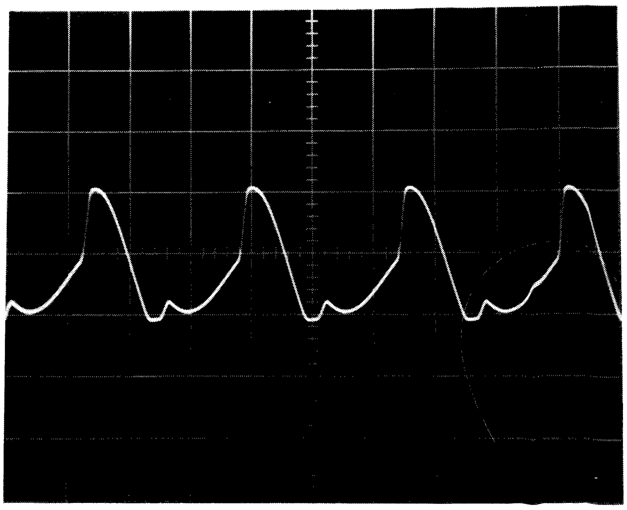


Fig. E21 1V/50μsec.div.

2-5-4. Chroma Rec Current Adjustment

Test Points: TP3006 (GND), TP3007 (HOT)
Adjustments: R3011 (REC FM)
R8015 (REC CHROMA)

1. Supply colour bar signal to the video input on the right side panel of the deck.
2. Place the deck in REC.PLAY mode.
3. Connect the scope between TP3006 (GND) and TP3007 (HOT) both on the Luminance section.
4. Turn the REC FM (R3011) fully counterclockwise, because REC FM signal is minimum.
5. Adjust REC CHROMA (R8015) on the Chrominance section so that the cyan portion of the chroma signal becomes 32 ± 2mVp-p.

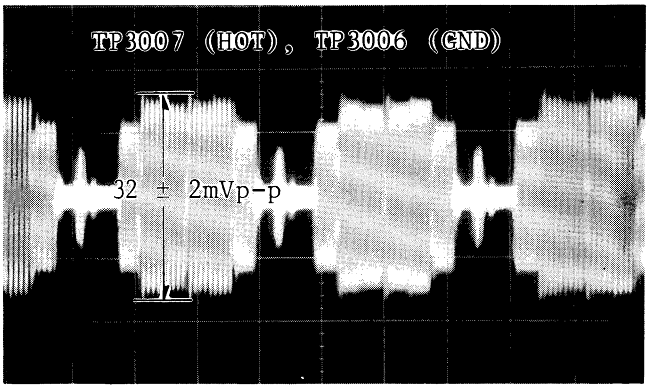


Fig. E22 10mV/20μsec.div.

6. Adjust REC FM (R3011) on the Chrominance section so that the Sync-Tip portion of FM signal becomes 150 ± 5mVp-p.

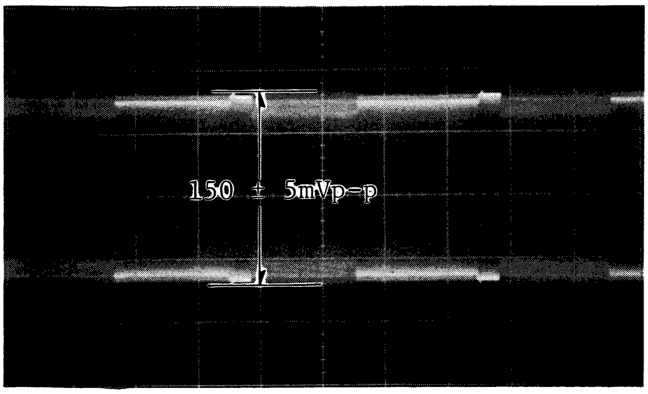


Fig. E23 50mV/5msec.div.

2-5-5. Head Amp Peak Adjustment

Test Point: TP3009
Adjustments: R3020 (Q-A), R3021 (Q-B)
C3024 (PEAK-A)
C3026 (PEAK-B)

1. Do not supply any video signal to the deck.
2. Turn the Q-A (R3020) and Q-B (R3021) both on the Luminance section to center.
3. Adjust the level of sweep generator to 28mV at 4.9MHz portion.
4. Connect the sweep generator to TP3005 on the Luminance section. And put the marker on 4.9MHz.
5. Cover the supply and takeup photo transistors with two pieces of black paper and place the unit in the PLAY/PAUSE mode without a tape.
6. Connect the scope to TP3009 on the same section.
7. Adjust PEAK-A (C3024) and PEAK-B (C3026) both on the same section so that the peaks on the scope becomes 4.9MHz portions.
8. Adjust R3020 and R3021 so that the CH A and CH B waveforms are balanced and 200mVp-p.

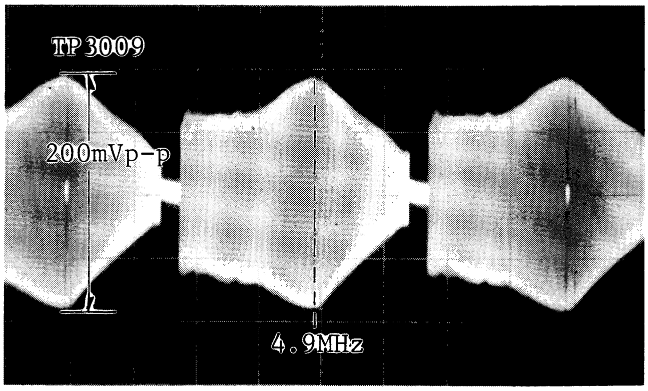


Fig. E24 50mV/5msec.div.

2-5-6. Frequency Response Adjustment

Test Points: TP3007 (HOT), TP3006 (GND)
TP3009
Adjustments; R3020 (Q-A),. R3021 (Q-B)

1. Insert the cassette tape and place the deck in REC.PLAY mode.
2. Connect the jumper between TP3003 and GND both on the Luminance section.
3. Connect the scope between TP3006 (GND) and TP3007 (HOT) both on the same section.

4. Connect the sync-output of sweep generator to the video input on the right side panel of the deck, and connect the sweep signal output to TP3004 on the same section.
5. Put the marker of sweep output at 2MHz, 3.8MHz and 4.9MHz and set the output level of 3.8MHz portion for 150mVp-p on the scope.

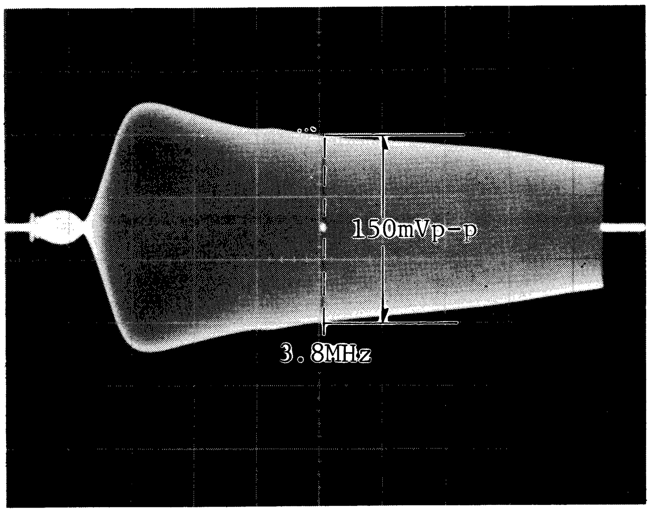


Fig. E25 50mV/2msec.div.

6. Remove the jumper wire, sweep generator and scope after few minutes passed.
7. Connect the scope to TP3009 on the same section.
8. Playback the just recorded portions, and adjust Q-A (R3020) and Q-B (R3021) both on the samesection so that the 2MHz portions and 4.9MHz portions are as shown below.

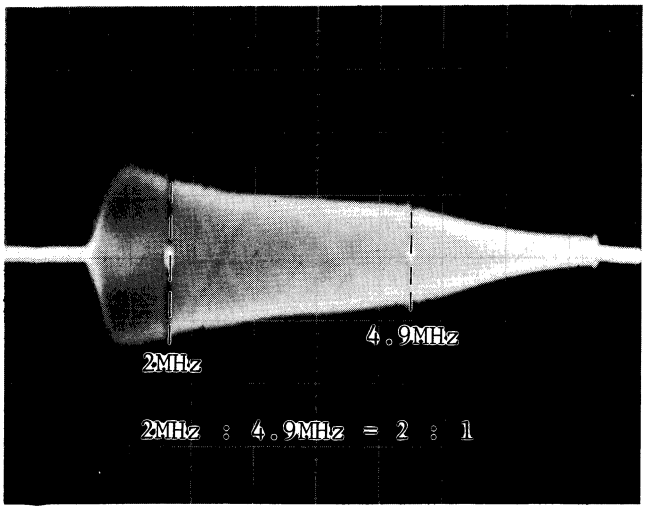


Fig. E26 50mV/2msec.div.

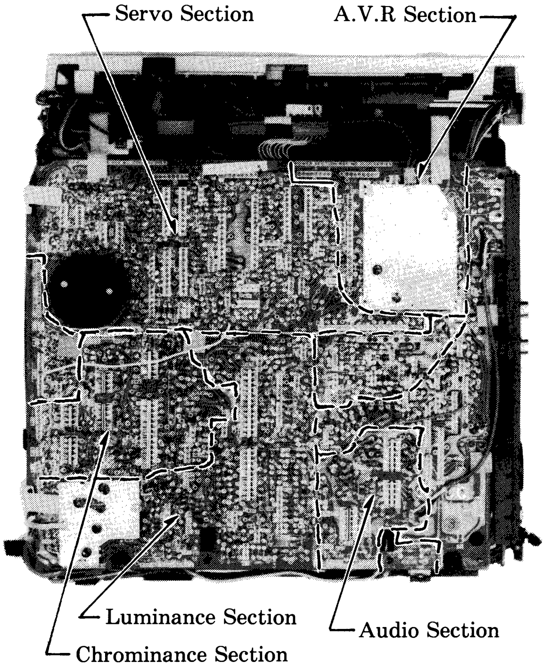
2-5-7. Playback Level Adjustment

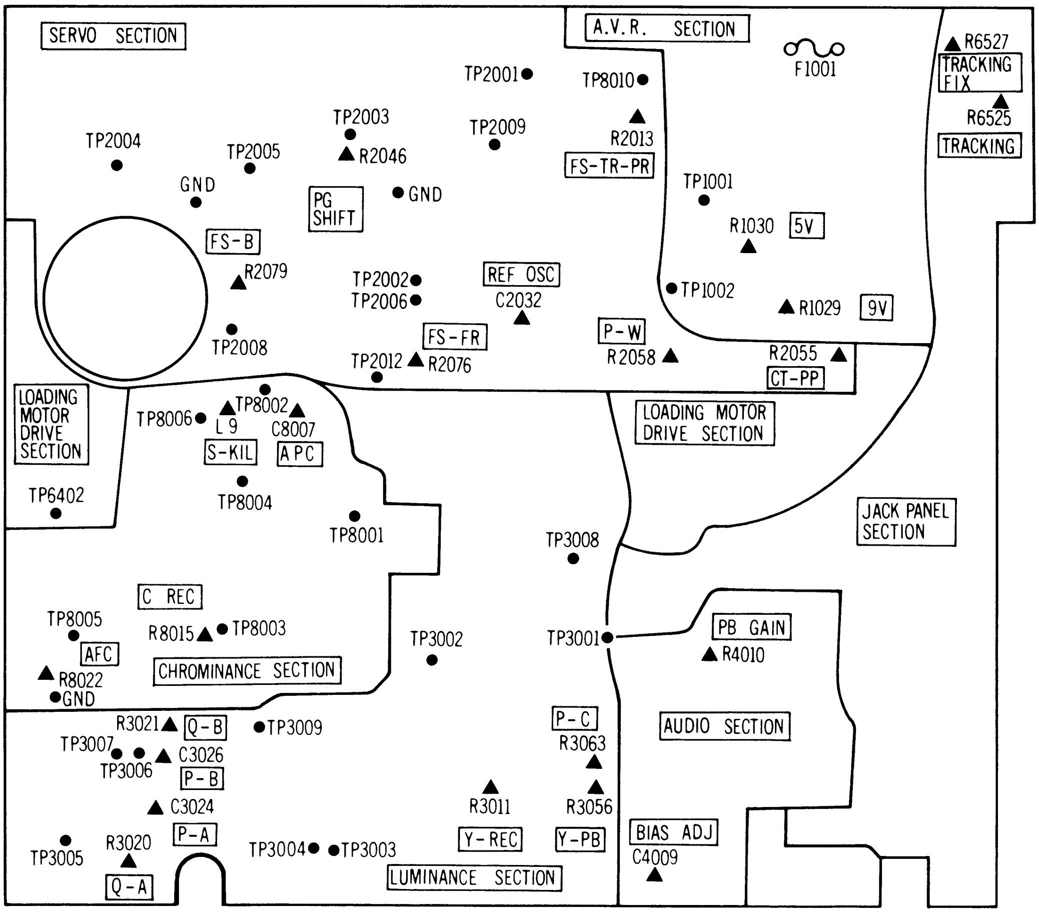
Test Point: TP3008
Adjustments: R3063 (PICTURE)
R3056 (Y-PB)

1. Supply colour bar signal to the video input on the right side panel of the deck and make a recording for a few minutes.
2. Playback the just recorded portions and connect the 75Ω terminator to the video output of the deck.
3. Turn the PICTURE (R3063) on the Luminance section for center.
4. Connect the scope to TP3008 on the same section, and adjust Y-PB (R3056) on the same section so that the level of waveform is 2.0 ± 0.1 Vp-p.

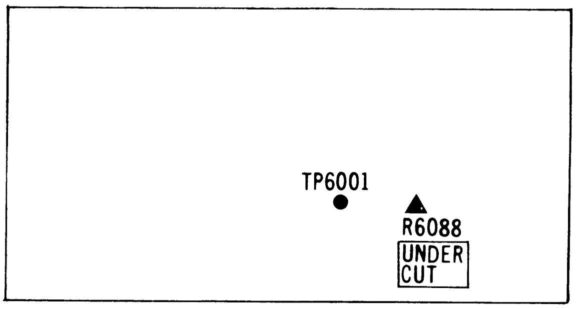
LOCATION OF TEST POINT & CONTROLS

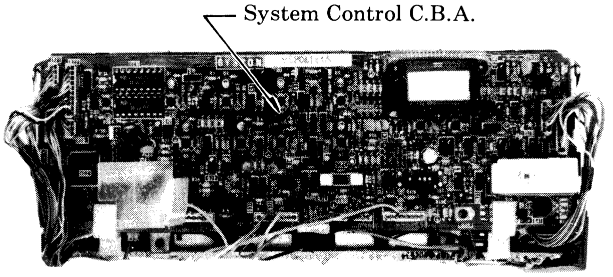
MAIN P.C.B. UNIT (VEP03137A/VEP03137B)


Servo Section
A.V.R Section
Luminance Section
Audio Section
Chrominance Section

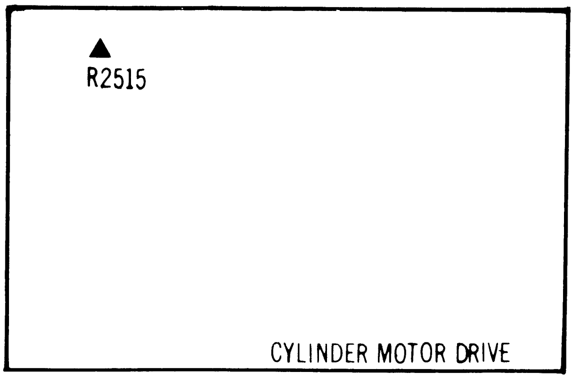

SERVO SECTION
A.V.R. SECTION
F1001
R6527
TRACKING FIX
R6525
TRACKING
TP2001
TP8010
TP2003
TP2009
R2013
TP2004
TP2005
R2046
FS-TR-PR
TP1001
GND
PG SHIFT
GND
R1030
5V
FS-B
R2079
TP2002
TP2006
REF OSC
C2032
TP1002
R1029
9V
TP2008
FS-FR
P-W
TP2012
R2076
R2058
R2055
CT-PP
LOADING MOTOR DRIVE SECTION
TP8006
TP8002
L9
C8007
S-KIL
APC
LOADING MOTOR DRIVE SECTION
TP6402
TP8004
TP8001
TP3008
JACK PANEL SECTION
C REC
TP8005
R8015
TP8003
TP3002
TP3001
PB GAIN
R4010
AFC
CHROMINANCE SECTION
R8022
GND
R3021
Q-B
TP3009
P-C
R3063
AUDIO SECTION
TP3007
C3026
TP3006
P-B
C3024
R3011
R3056
TP3005
R3020
P-A
TP3004
TP3003
Y-REC
Y-PB
BIAS ADJ
C4009
Q-A
LUMINANCE SECTION

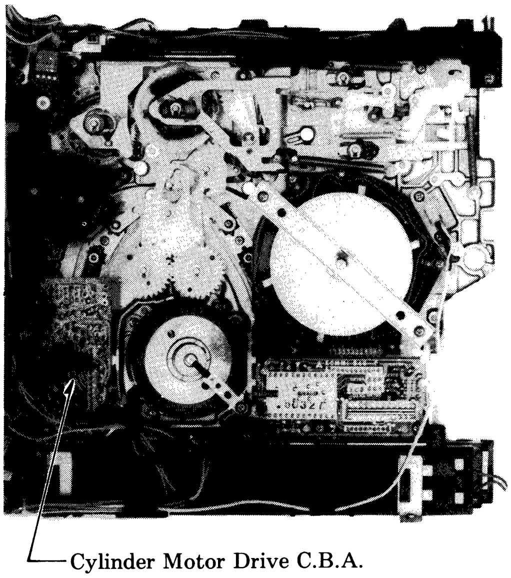
SYSTEM CONTROL P.C.B. UNIT (VEP06164A)


TP6001
R6088
UNDER CUT


System Control C.B.A.

CYLINDER MOTOR DRIVE P.C.B. UNIT (VEP02148B)


R2515
CYLINDER MOTOR DRIVE


Cylinder Motor Drive C.B.A.

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ORDER NO. VRD-8206-099

Service Manual

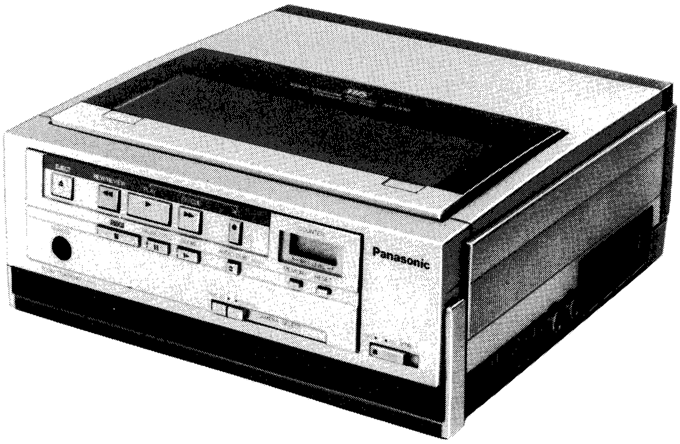
Portable Video Cassette Recorder

Panasonic VHS

NV-100-E -B -EG

Vol. 3

Block Diagrams
Schematic Diagrams



SPECIFICATIONS

Power Source: DC 12V
Power Consumption: Approx. 6.7W at Play mode
Video Recording System: 2 rotary heads, helical scanning system
Tape Speed: 23.39mm/s
Tape Format: Tape width 12.7mm high density tape
Record/Playback Time: 240 min. with NV-E240
FF/REW Time: Less than 6.5 min. with NV-E180

VIDEO
Television System: CCIR: 625 lines, 50 fields PAL colour signal
(PAL/D.D.R SECAM colour signal: NV-100EG only)
Modulation System: Luminance: FM azimuth recording
Colour signal: converted subcarrier phase shift recording
Input Level: VIDEO IN (BNC): 1.0Vp-p, 75Ω unbalanced
Output Level: VIDEO OUT (BNC): 1.0Vp-p, 75Ω unbalanced
RF Modulated: UHF channel 36 (±4), 75Ω unbananced

AUDIO
Input Level: MIC IN (M3): −70dB, more than 600Ω unbalanced
10 pin input, Multi input: −20dB, 2.2kΩ unbalanced
Output Level: LINE OUT (RCA): −6dB, 600Ω unbalanced
Earphone: −10dB, 200Ω unbalanced
Audio Track: 1 track

Video Horizontal Resolution: Colour: more than 240 lines
Signal-to-Noise Ratio: Video: more than 40dB
Audio: more than 43dB
Audio Frequency Response: 80Hz—10kHz
Operating Room Temperature: 0°C—40°C
Operating Humidity: 35%—80%
Weight: 3.8kg (with internal battery pack)
Dimensions: 236(W) x 92(H) x 242(D) mm
Standard Accessories: 1 pc. Video Cassette Tape
2 pcs. DIN-RF coaxial cable
1 pc. Audio Input Attenuator
1 pc. Earphone
1 pc. Carrying Case
Optional Accessories: Video cassette tape:

NV-E240	Approx.	344m,	240 min.
NV-E180	Approx.	258m,	180 min.
NV-E120	Approx.	174m,	120 min.
NV-E90	Approx.	130m,	90 min.
NV-E60	Approx.	88m,	60 min.
NV-E30	Approx.	45m,	30 min.

Battery Pack, LCS2012E
Video Tuner/Timer Adaptor, NV-V10
AC Adaptor, NV-B11
Wireless Remote Controller, NV-A17
Wired Remote Controller, NV-A13
Car Battery Cord, NV-C12
Video Camera
Microphone

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

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RF CONVERTER UNIT (NV-100B;ENC17554) 3-18

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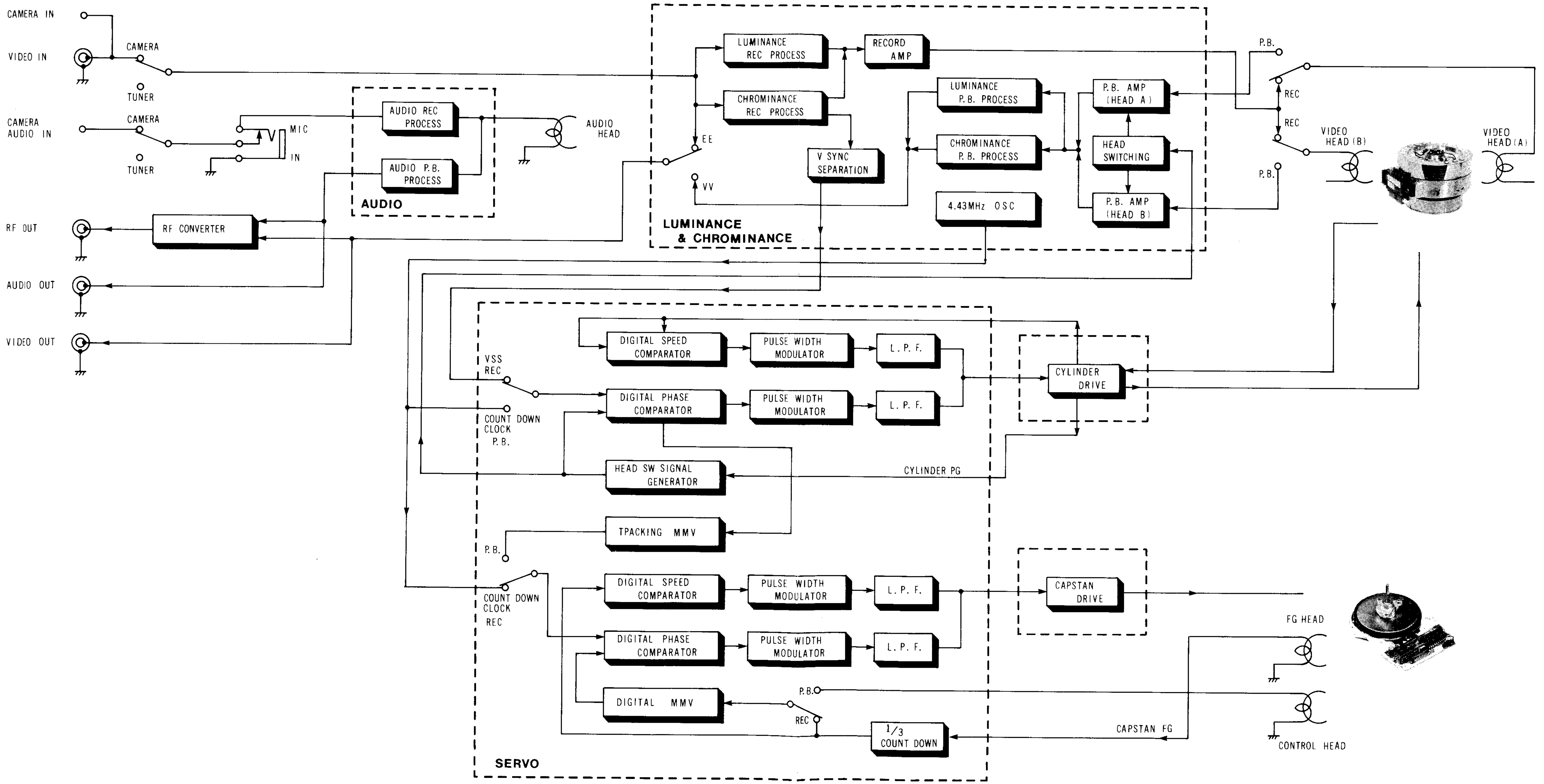
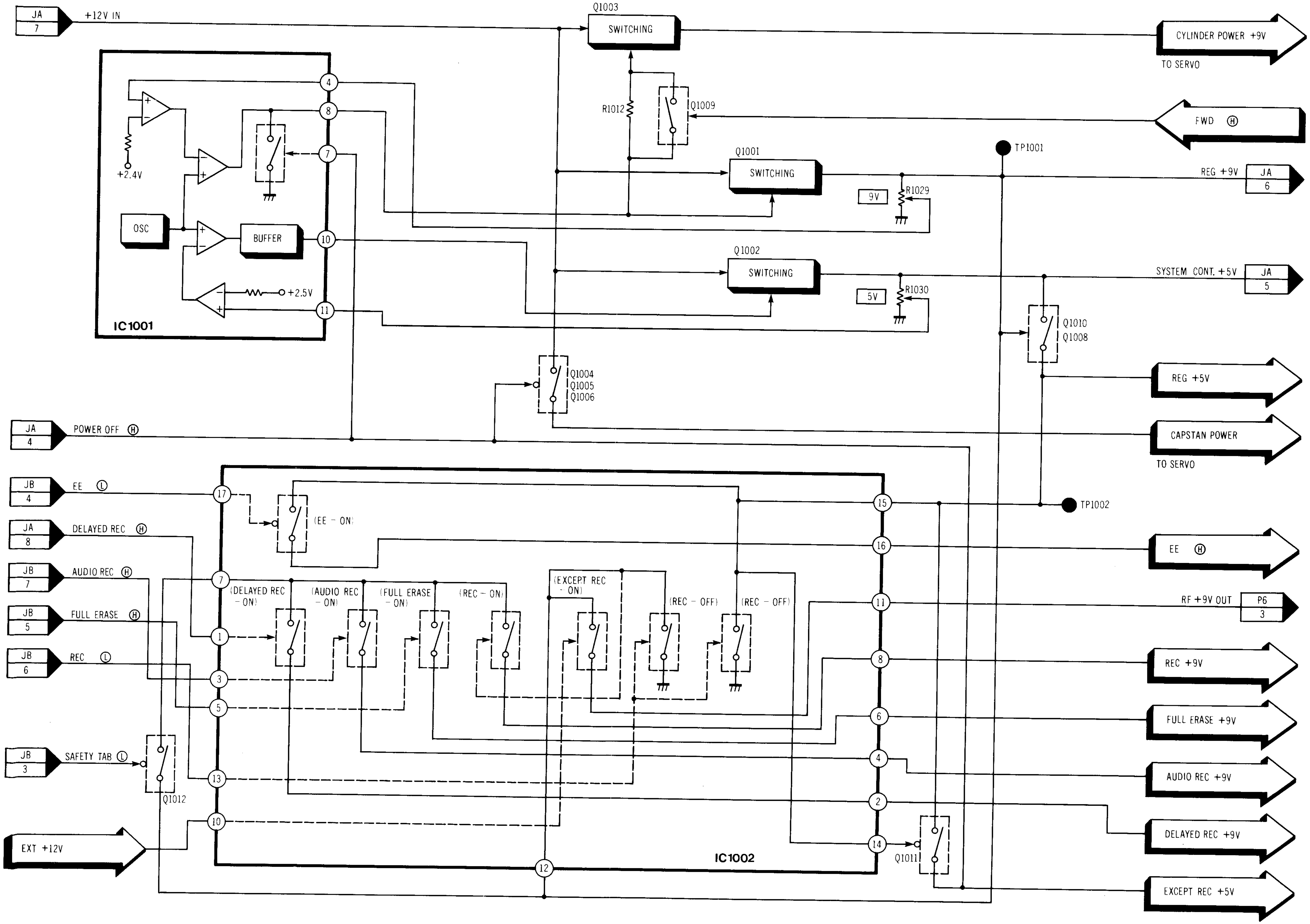
INTERCONNECTION SCHEMATIC DIAGRAM 3-23

OVERALL BLOCK DIAGRAM

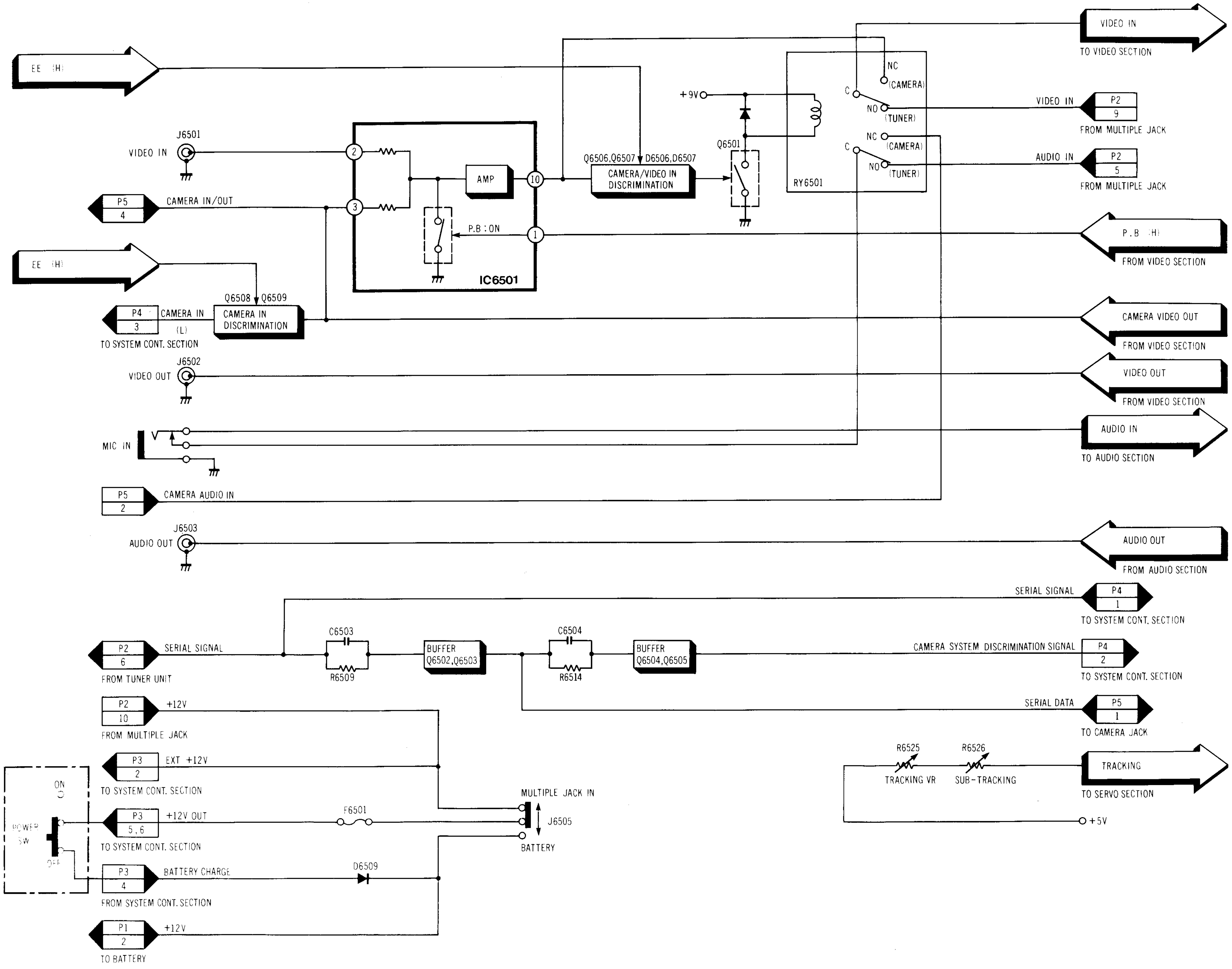

CAMERA IN
VIDEO IN
CAMERA
TUNER
CAMERA AUDIO IN
CAMERA
TUNER
MIC
IN
AUDIO REC PROCESS
AUDIO P.B. PROCESS
AUDIO
AUDIO HEAD
RF OUT
RF CONVERTER
AUDIO OUT
VIDEO OUT
LUMINANCE REC PROCESS
RECORD AMP
CHROMINANCE REC PROCESS
EE
VV
V SYNC SEPARATION
LUMINANCE P.B. PROCESS
CHROMINANCE P.B. PROCESS
4.43MHz OSC
P.B. AMP (HEAD A)
HEAD SWITCHING
P.B. AMP (HEAD B)
LUMINANCE & CHROMINANCE
P.B.
REC
REC
P.B.
VIDEO HEAD (B)
VIDEO HEAD (A)
VSS
REC
COUNT DOWN CLOCK
P.B.
DIGITAL SPEED COMPARATOR
PULSE WIDTH MODULATOR
L. P. F.
DIGITAL PHASE COMPARATOR
PULSE WIDTH MODULATOR
L. P. F.
CYLINDER DRIVE
HEAD SW SIGNAL GENERATOR
CYLINDER PG
TPACKING MMV
P.B.
COUNT DOWN CLOCK
REC
DIGITAL SPEED COMPARATOR
PULSE WIDTH MODULATOR
L. P. F.
CAPSTAN DRIVE
DIGITAL PHASE COMPARATOR
PULSE WIDTH MODULATOR
L. P. F.
FG HEAD
DIGITAL MMV
P.B.
REC
1/3 COUNT DOWN
CAPSTAN FG
CONTROL HEAD
SERVO

A.V.R. BLOCK DIAGRAM



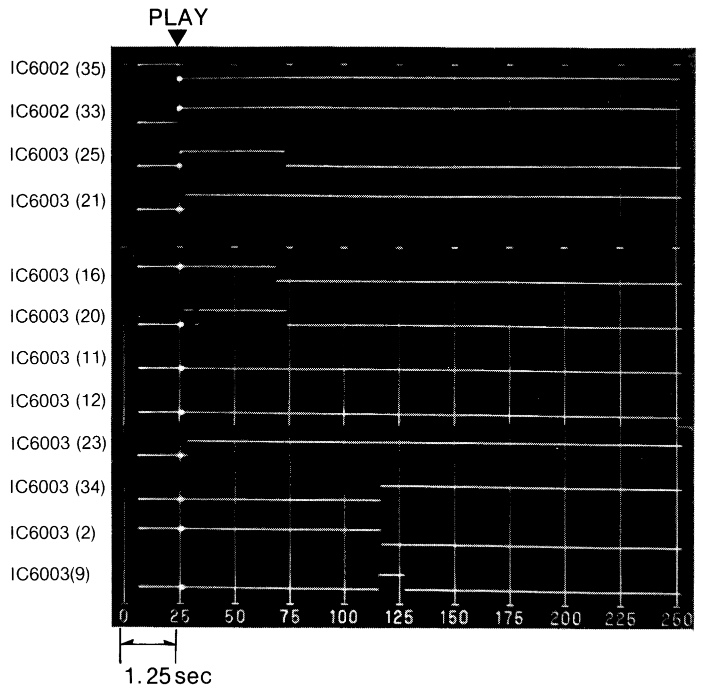
JA 7
+12V IN
Q1003
SWITCHING
CYLINDER POWER +9V
TO SERVO
R1012
Q1009
FWD Ⓗ
TP1001
Q1001
SWITCHING
REG +9V
JA 6
9V
R1029
Q1002
SWITCHING
SYSTEM CONT. +5V
JA 5
5V
R1030
Q1010
Q1008
REG +5V
CAPSTAN POWER
TO SERVO
IC1001
+2.4V
OSC
BUFFER
+2.5V
4
8
7
10
11
Q1004
Q1005
Q1006
JA 4
POWER OFF Ⓗ
JB 4
EE Ⓛ
JA 8
DELAYED REC Ⓗ
JB 7
AUDIO REC Ⓗ
JB 5
FULL ERASE Ⓗ
JB 6
REC Ⓛ
JB 3
SAFETY TAB Ⓛ
Q1012
EXT +12V
(EE – ON)
(DELAYED REC – ON)
(AUDIO REC – ON)
(FULL ERASE – ON)
(REC – ON)
(EXCEPT REC – ON)
(REC – OFF)
(REC – OFF)
17
7
1
3
5
13
10
12
15
16
11
8
6
4
2
14
IC1002
Q1011
TP1002
EE Ⓗ
RF +9V OUT
P6 3
REC +9V
FULL ERASE +9V
AUDIO REC +9V
DELAYED REC +9V
EXCEPT REC +5V

JACK PANEL BLOCK DIAGRAM

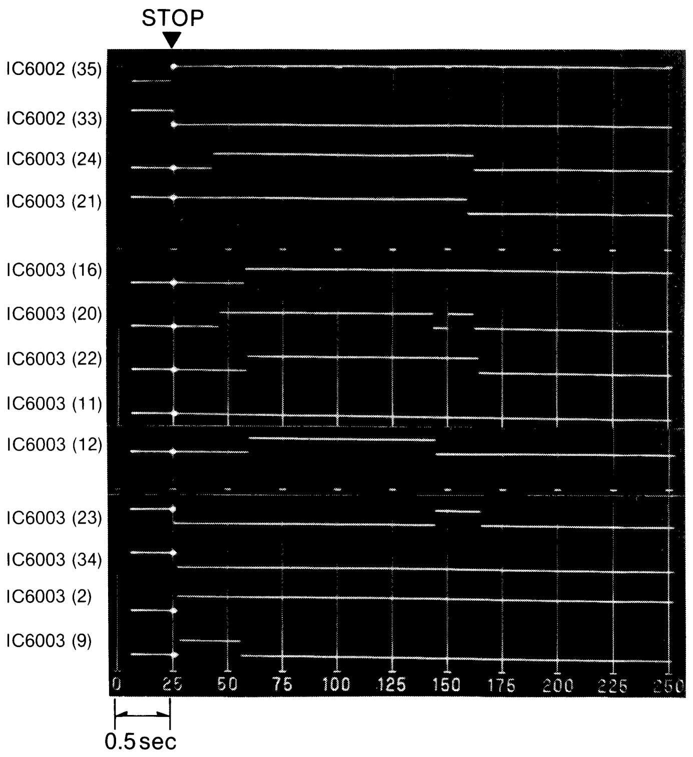

EE (H)
J6501
VIDEO IN
P5 4
CAMERA IN/OUT
EE (H)
Q6508, Q6509
P4 3
CAMERA IN (L)
CAMERA IN DISCRIMINATION
TO SYSTEM CONT. SECTION
J6502
VIDEO OUT
MIC IN
P5 2
CAMERA AUDIO IN
J6503
AUDIO OUT
AMP
P.B : ON
IC6501
2
3
10
1
+9V
Q6506, Q6507
D6506, D6507
CAMERA/VIDEO IN DISCRIMINATION
Q6501
RY6501
NC (CAMERA)
C
NO (TUNER)
NC (CAMERA)
C
NO (TUNER)
VIDEO IN
TO VIDEO SECTION
VIDEO IN
P2 9
FROM MULTIPLE JACK
AUDIO IN
P2 5
FROM MULTIPLE JACK
P.B (H)
FROM VIDEO SECTION
CAMERA VIDEO OUT
FROM VIDEO SECTION
VIDEO OUT
FROM VIDEO SECTION
AUDIO IN
TO AUDIO SECTION
AUDIO OUT
FROM AUDIO SECTION
SERIAL SIGNAL
P4 1
TO SYSTEM CONT. SECTION
P2 6
SERIAL SIGNAL
FROM TUNER UNIT
C6503
R6509
BUFFER Q6502, Q6503
C6504
R6514
BUFFER Q6504, Q6505
CAMERA SYSTEM DISCRIMINATION SIGNAL
P4 2
TO SYSTEM CONT. SECTION
SERIAL DATA
P5 1
TO CAMERA JACK
P2 10
+12V
FROM MULTIPLE JACK
P3 2
EXT +12V
TO SYSTEM CONT. SECTION
ON
POWER SW
OFF
P3 5, 6
+12V OUT
TO SYSTEM CONT. SECTION
F6501
MULTIPLE JACK IN
J6505
BATTERY
P3 4
BATTERY CHARGE
FROM SYSTEM CONT. SECTION
D6509
P1 2
+12V
TO BATTERY
R6525
R6526
TRACKING VR
SUB-TRACKING
TRACKING
TO SERVO SECTION
+5V

MODE BY MODE IC TIMING CHART

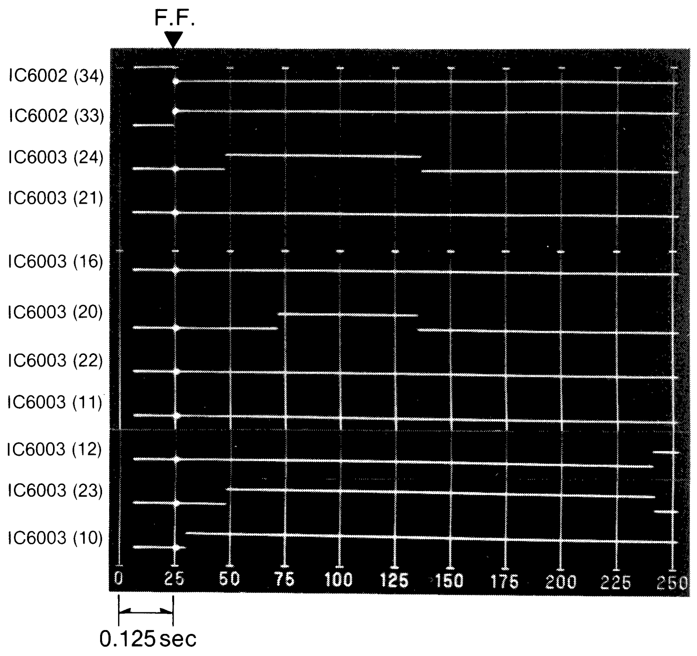
1. STOP → PLAY



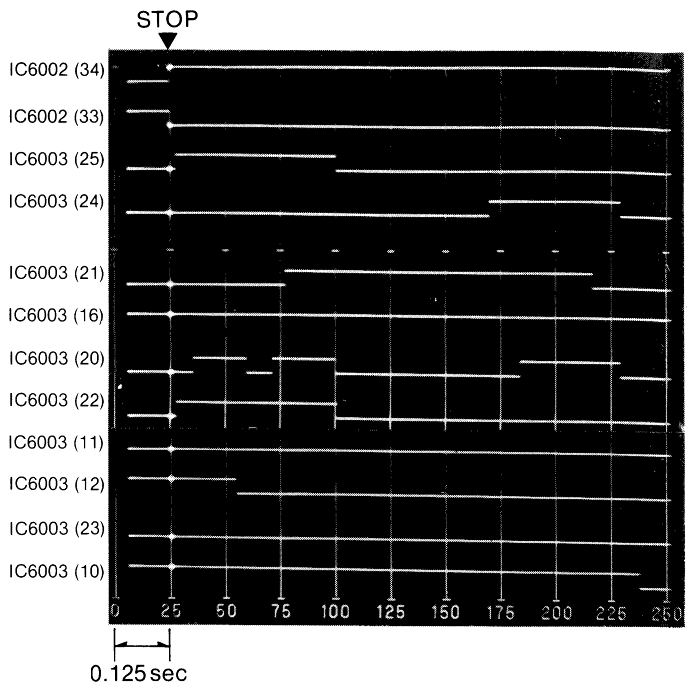
2. PLAY → STOP



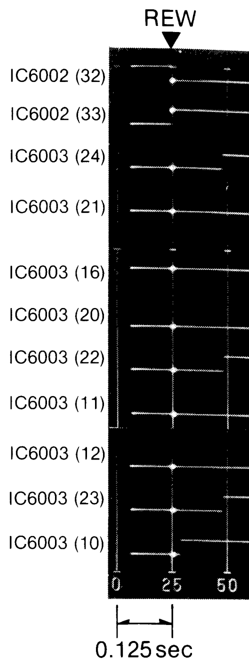
3. STOP → F.F.



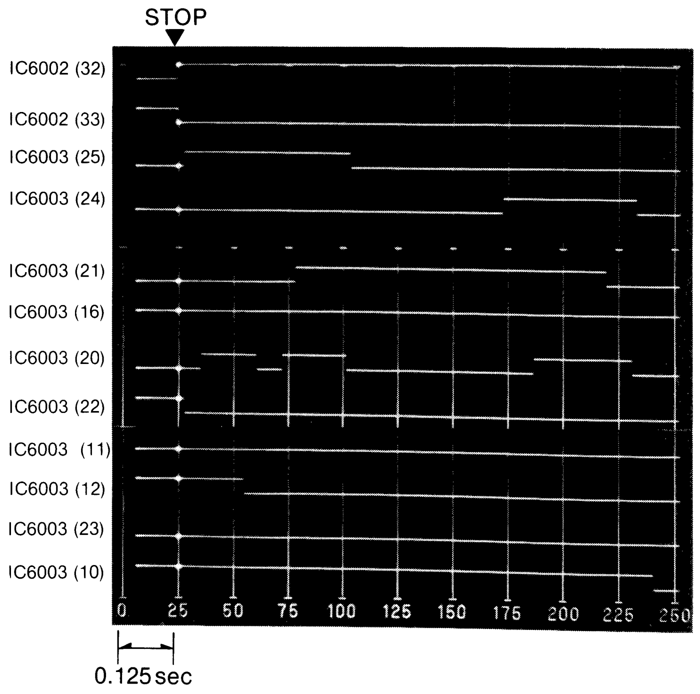
4. F.F. → STOP



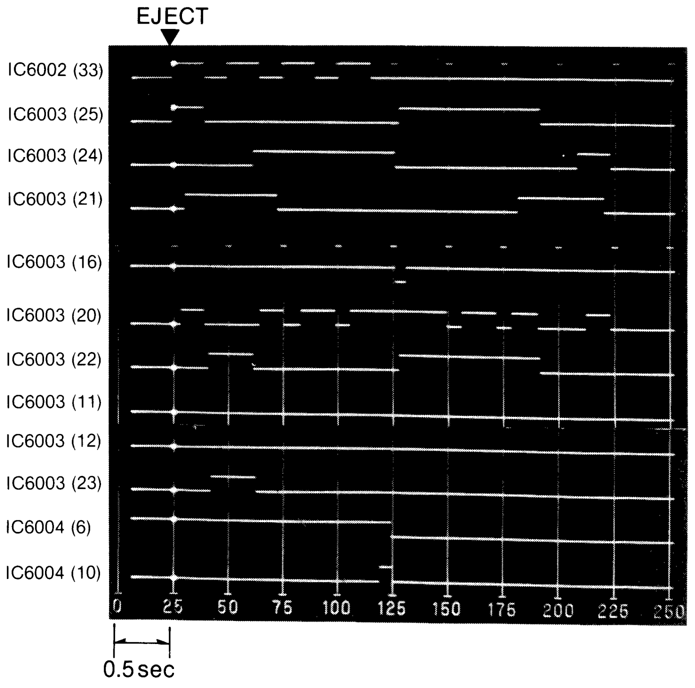
5. STOP



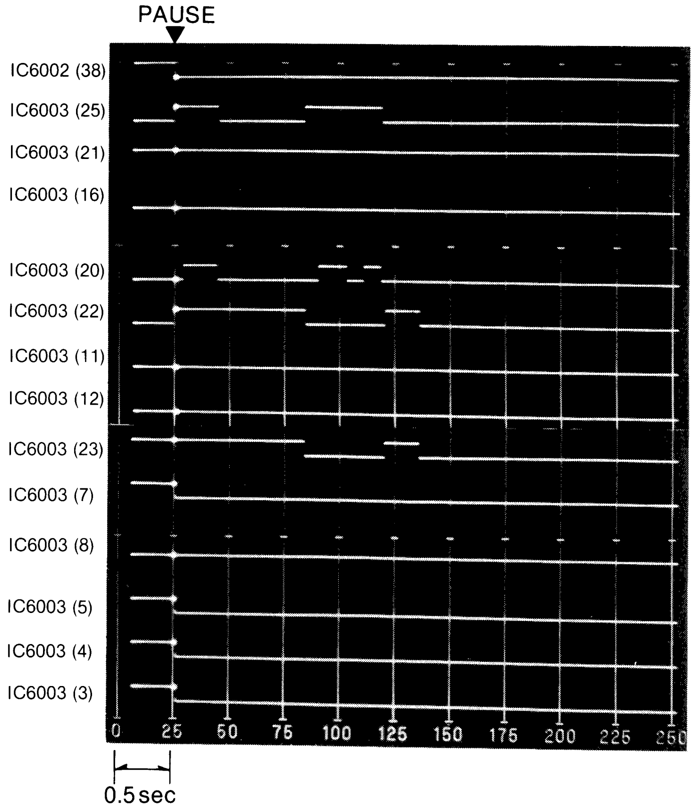
6. REW → STOP



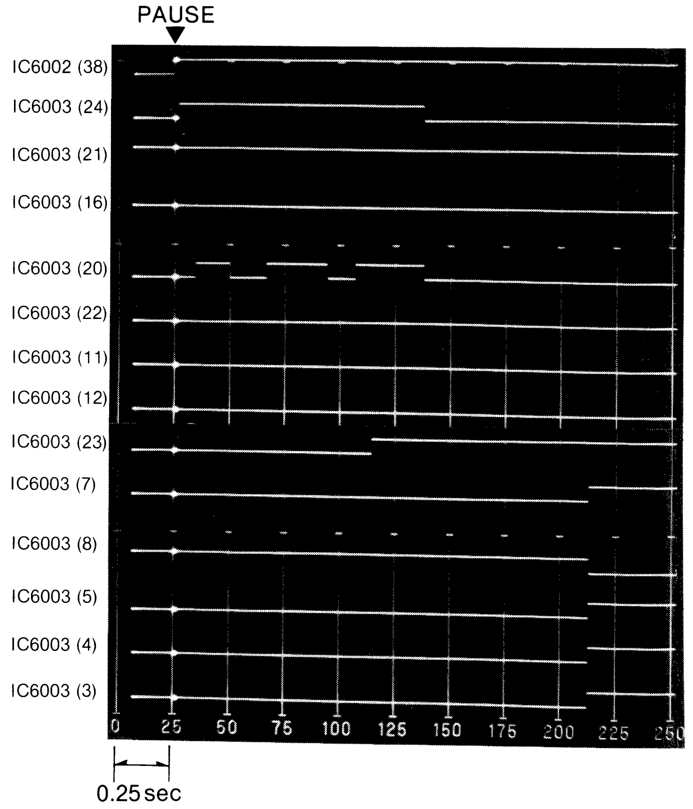
7. STOP → EJECT



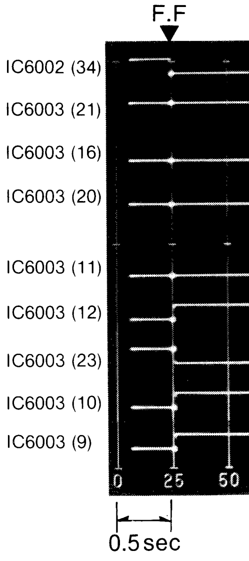
8. REC • PLAY → REC • PAUSE

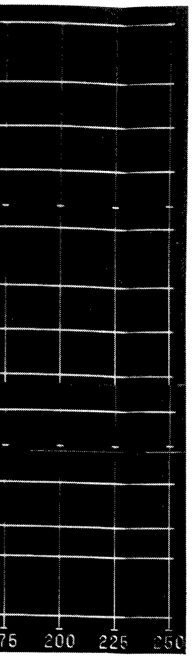


9. REC • PAUSE → REC • PLAY

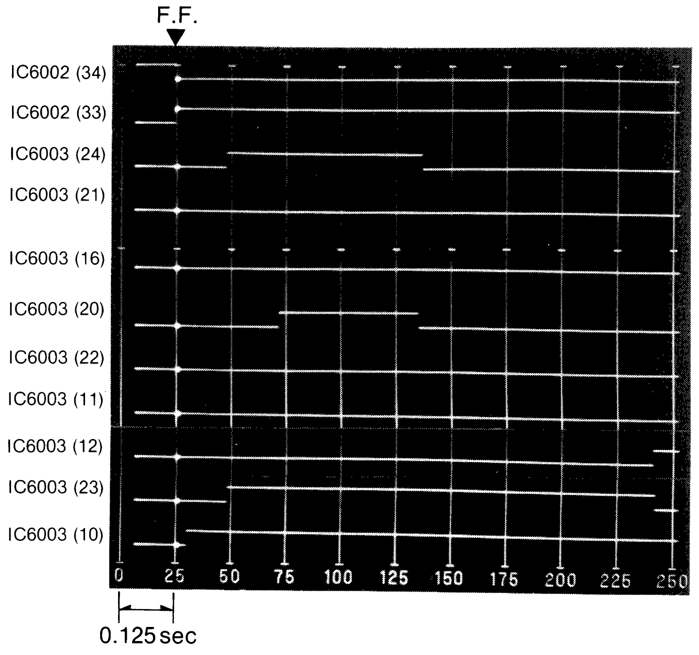


10. PLAY

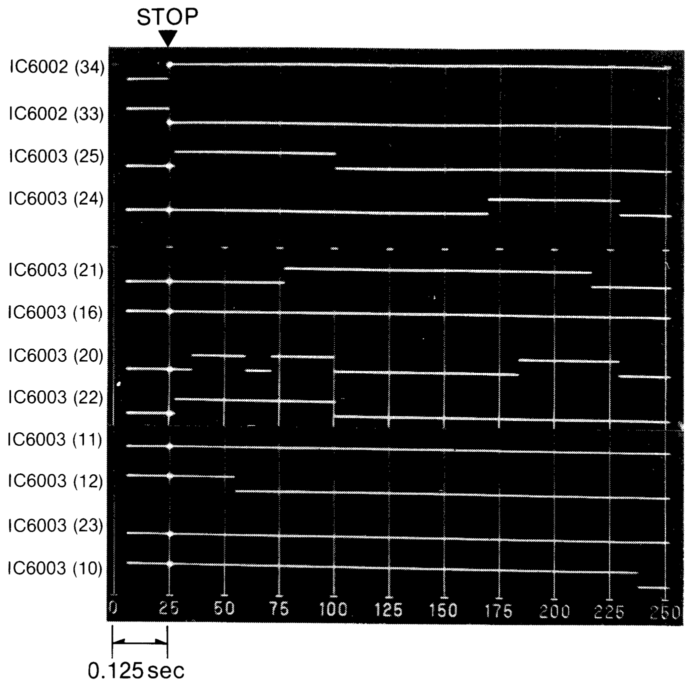




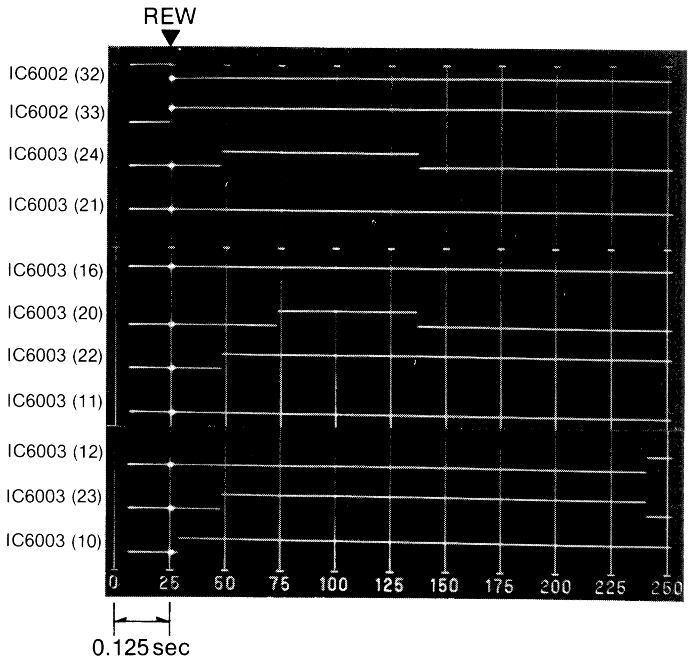
3. STOP → F.F.

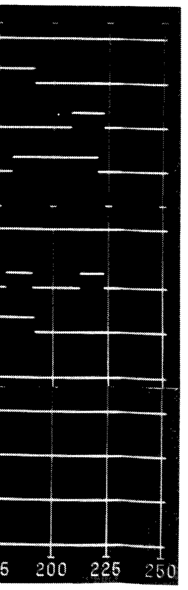


4. F.F. → STOP

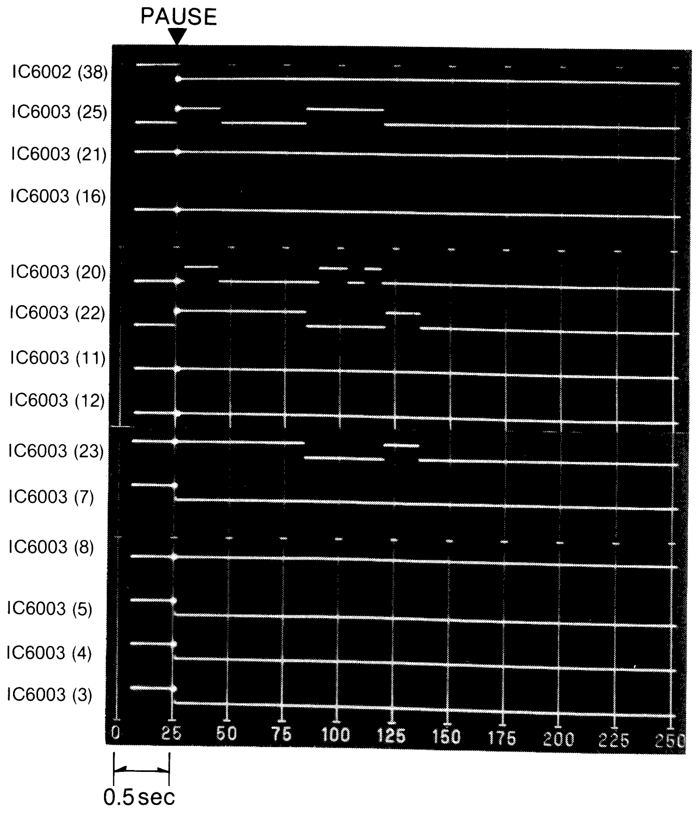


5. STOP → REW

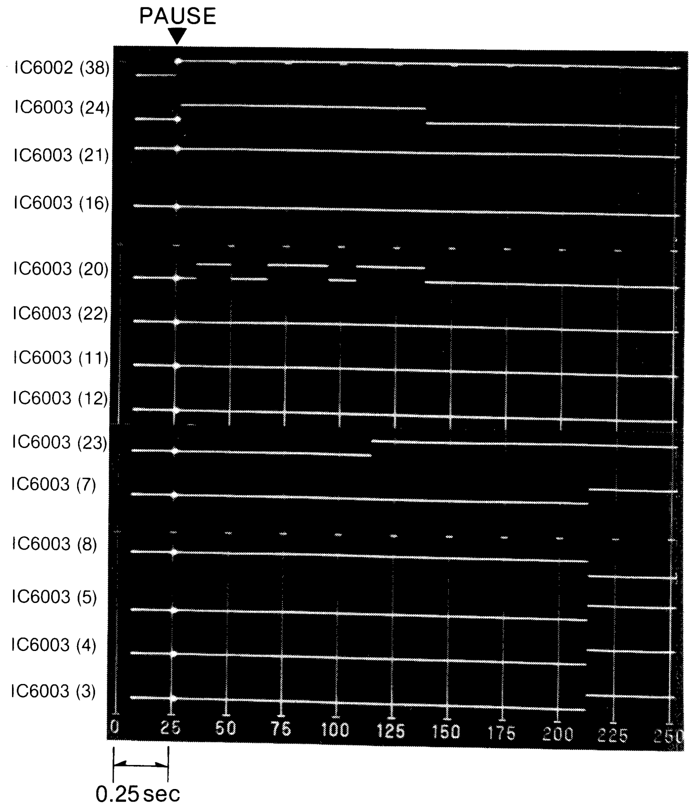




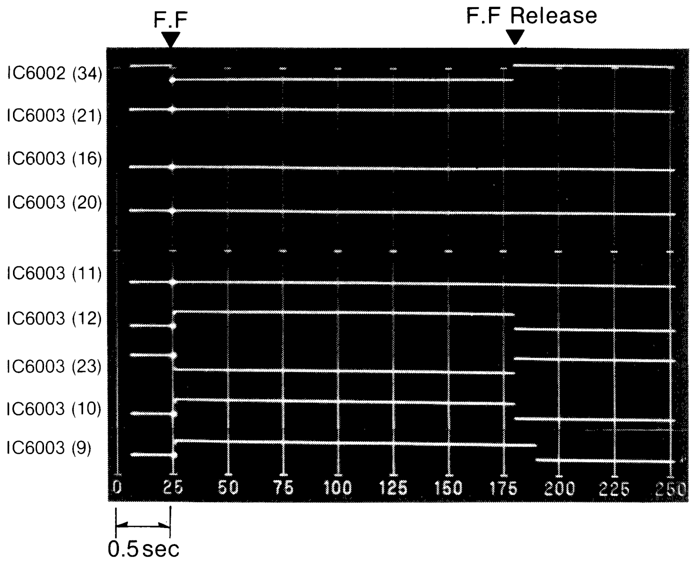
8. REC • PLAY → REC • PAUSE



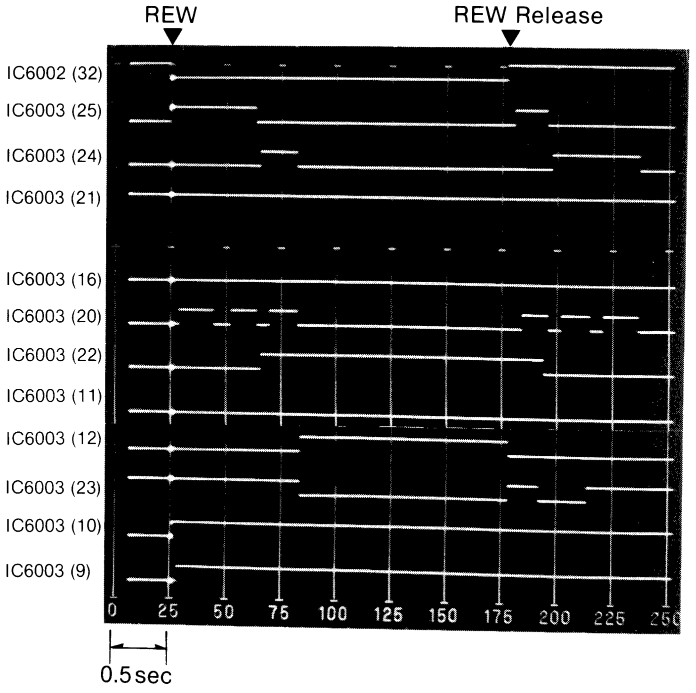
9. REC • PAUSE → REC • PLAY



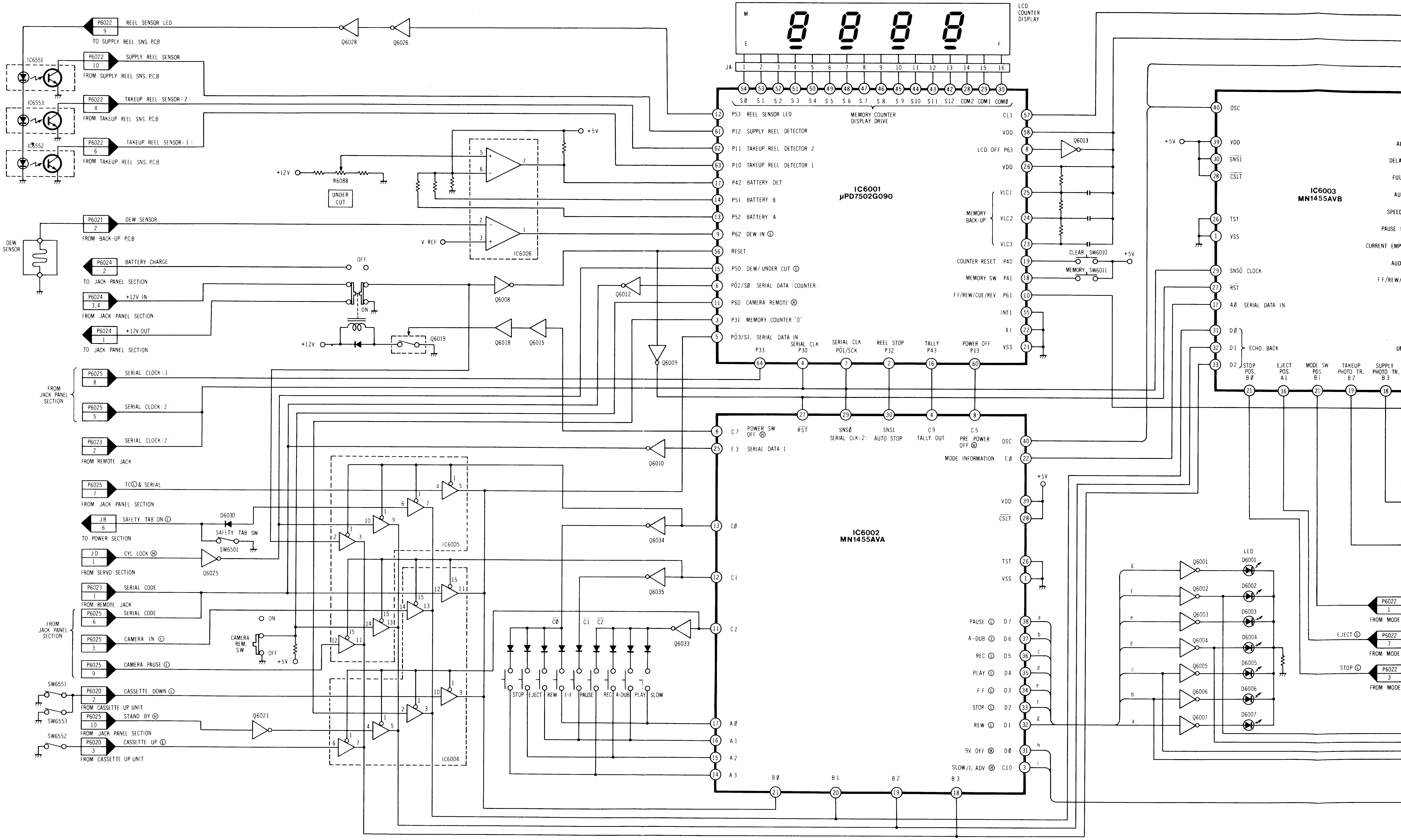
10. PLAY → CUE → PLAY

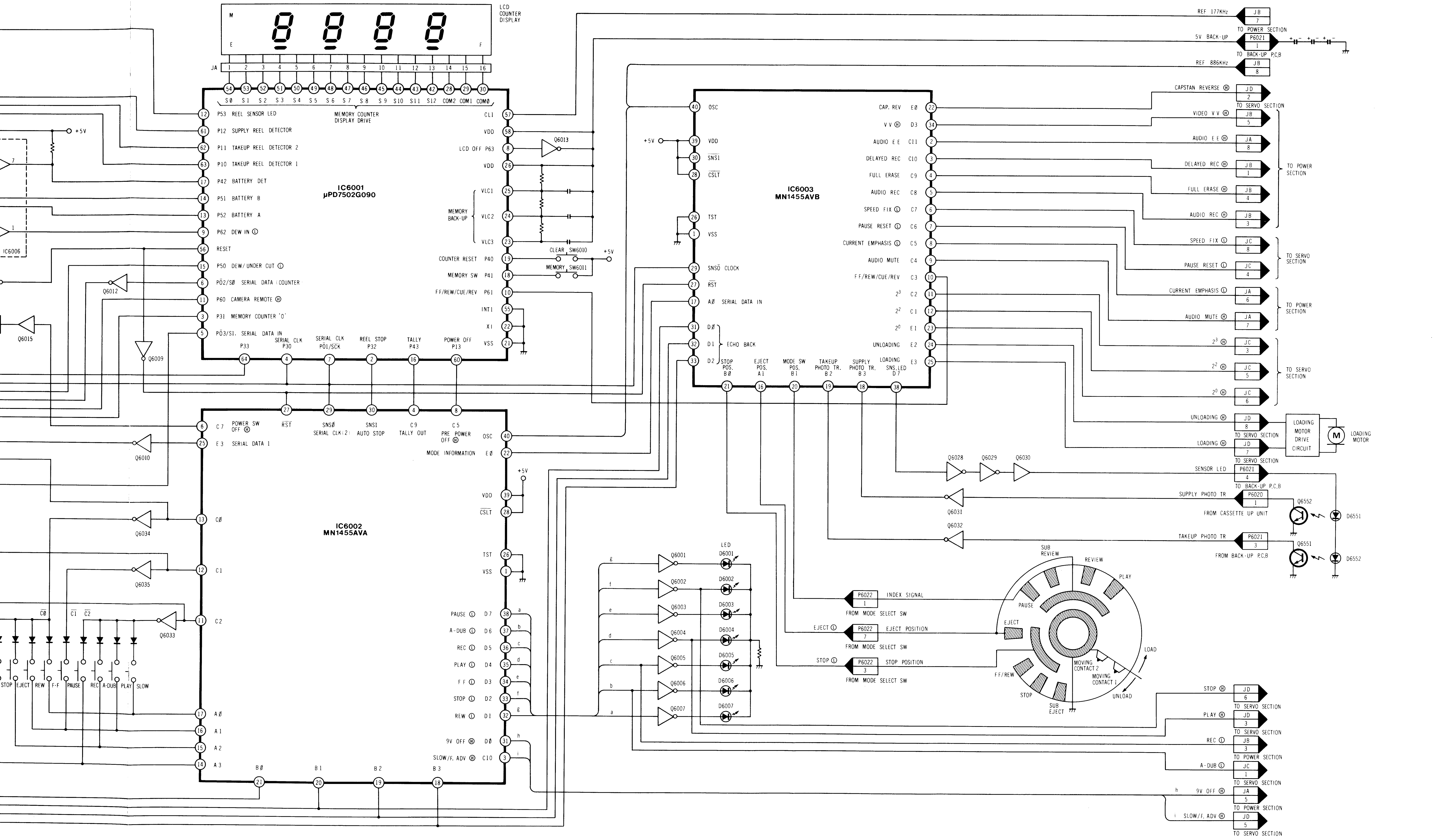


11. PLAY → REVIEW → PLAY

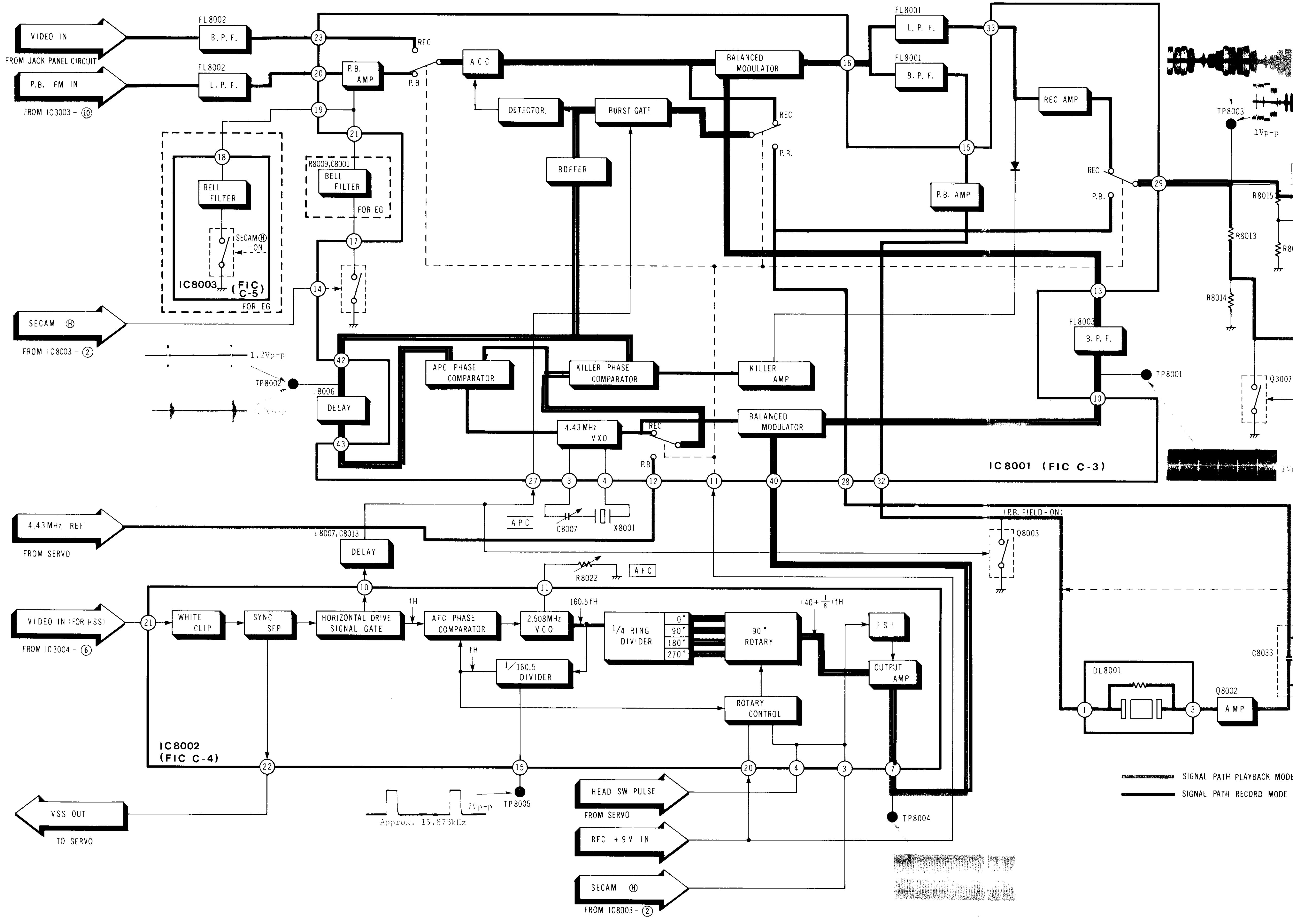


SYSTEM CONTROL BLOCK DIAGRAM

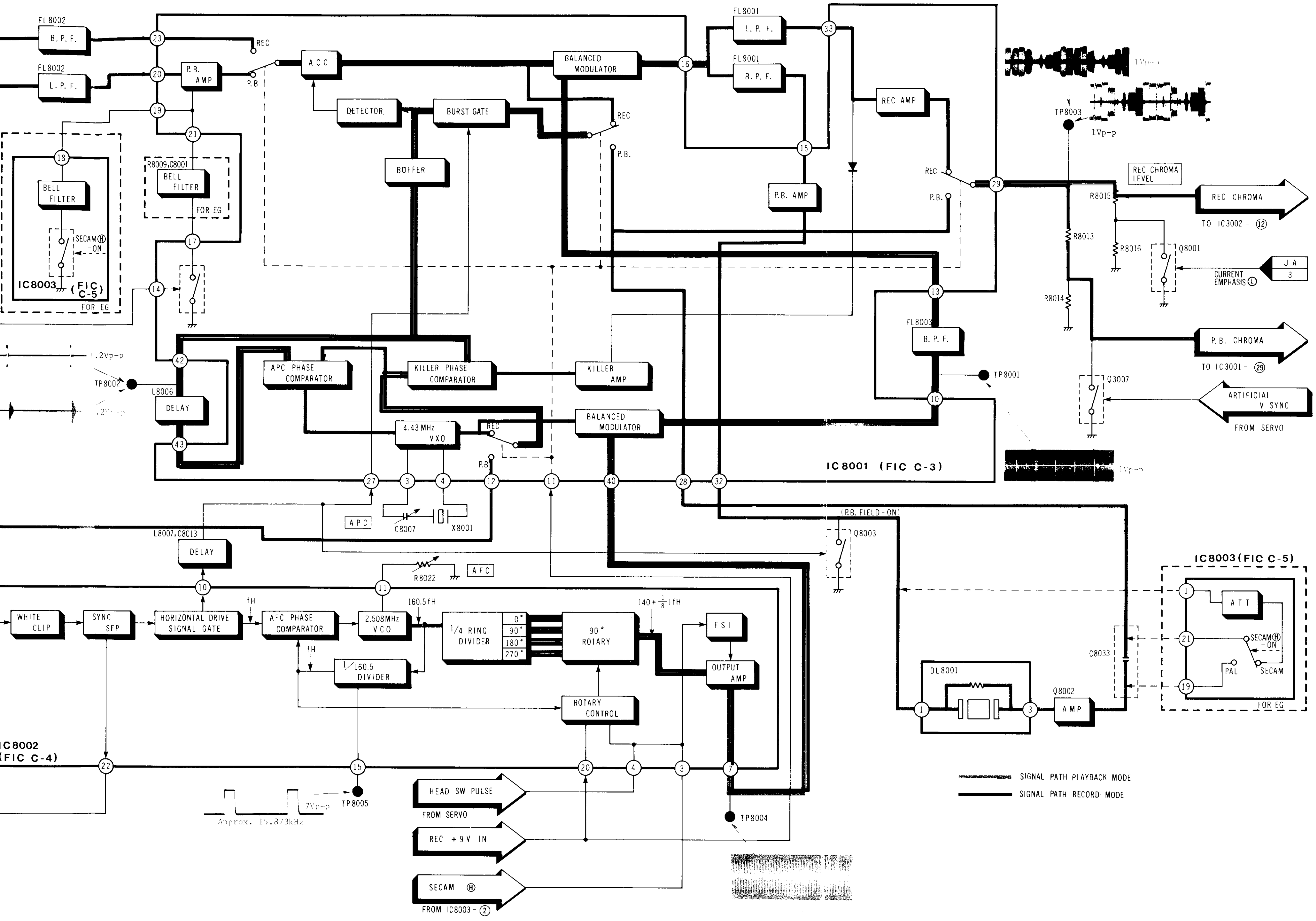

P6022 9 REEL SENSOR LED
TO SUPPLY REEL SNS. P.C.B
P6022 10 SUPPLY REEL SENSOR
FROM SUPPLY REEL SNS. P.C.B
P6022 4 TAKEUP REEL SENSOR (2)
FROM TAKEUP REEL SNS. P.C.B
P6022 6 TAKEUP REEL SENSOR (1)
FROM TAKEUP REEL SNS. P.C.B
IC6551
IC6553
IC6552
Q6028
Q6026
+12V
R6088
UNDER CUT
+5V
IC6006
V REF
DEW SENSOR
P6021 2 DEW SENSOR
FROM BACK-UP P.C.B
P6024 2 BATTERY CHARGE
TO JACK PANEL SECTION
P6024 3,4 +12V IN
FROM JACK PANEL SECTION
P6024 1 +12V OUT
TO JACK PANEL SECTION
OFF
ON
Q6008
Q6012
Q6018
Q6015
Q6019
Q6009
FROM JACK PANEL SECTION
P6025 8 SERIAL CLOCK (1)
P6025 5 SERIAL CLOCK (2)
P6023 2 SERIAL CLOCK (2)
FROM REMOTE JACK
Q6010
P6025 7 TC Ⓛ & SERIAL
FROM JACK PANEL SECTION
JB 6 SAFETY TAB ON Ⓛ
TO POWER SECTION
D6030
SAFETY TAB SW
SW6501
JD 1 CYL LOCK Ⓗ
FROM SERVO SECTION
Q6025
P6023 1 SERIAL CODE
FROM REMOTE JACK
FROM JACK PANEL SECTION
P6025 6 SERIAL CODE
P6025 3 CAMERA IN Ⓛ
P6025 9 CAMERA PAUSE Ⓛ
CAMERA REM. SW
ON
OFF
+5V
SW6551
P6020 2 CASSETTE DOWN Ⓛ
FROM CASSETTE UP UNIT
SW6553
P6025 10 STAND BY Ⓗ
FROM JACK PANEL SECTION
Q6021
SW6552
P6020 3 CASSETTE UP Ⓛ
FROM CASSETTE UP UNIT
IC6005
IC6004
Q6034
Q6035
Q6033
C0 C1 C2
STOP EJECT REW F-F PAUSE REC A-DUB PLAY SLOW
LCD COUNTER DISPLAY
M E F
JA 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
S0 S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12 COM2 COM1 COM0
IC6001
μPD7502G090
MEMORY COUNTER DISPLAY DRIVE
P53 REEL SENSOR LED
P12 SUPPLY REEL DETECTOR
P11 TAKEUP REEL DETECTOR 2
P10 TAKEUP REEL DETECTOR 1
P42 BATTERY DET
P51 BATTERY B
P52 BATTERY A
P62 DEW IN Ⓛ
RESET
P50 DEW/UNDER CUT Ⓛ
P02/S0 SERIAL DATA (COUNTER)
P60 CAMERA REMOTE Ⓗ
P31 MEMORY COUNTER '0'
P03/SI. SERIAL DATA IN
P33
SERIAL CLK P30
SERIAL CLK P01/SCK
REEL STOP P32
TALLY P43
POWER OFF P13
CL1
VDD
LCD OFF P63
VDD
MEMORY BACK-UP
VLC1
VLC2
VLC3
COUNTER RESET P40
MEMORY SW P41
FF/REW/CUE/REV P61
INT1
X1
VSS
Q6013
CLEAR SW6010
MEMORY SW6011
+5V
IC6002
MN1455AVA
C7 POWER SW OFF Ⓗ
E3 SERIAL DATA 1
RST
SNS0 SERIAL CLK (2)
SNS1 AUTO STOP
C9 TALLY OUT
C5 PRE POWER OFF Ⓗ
OSC
MODE INFORMATION E0
VDD
CSLT
TST
VSS
C0
C1
C2
PAUSE Ⓛ D7
A-DUB Ⓛ D6
REC Ⓛ D5
PLAY Ⓛ D4
FF Ⓛ D3
STOP Ⓛ D2
REW Ⓛ D1
9V OFF Ⓗ D0
SLOW/F. ADV Ⓗ C10
A0 A1 A2 A3
B0 B1 B2 B3
IC6003
MN1455AVB
OSC
+5V
VDD
SNS1
CSLT
TST
VSS
SNS0 CLOCK
RST
A0 SERIAL DATA IN
D0
D1 ECHO BACK
D2
STOP POS. B0
EJECT POS. A1
MODE SW POS. B1
TAKEUP PHOTO TR. B2
SUPPLY PHOTO TR. B3
Q6001 Q6002 Q6003 Q6004 Q6005 Q6006 Q6007
LED
D6001 D6002 D6003 D6004 D6005 D6006 D6007
P6022 1
P5022 7
EJECT Ⓛ
STOP Ⓛ
P6022 3
FROM MODE


LCD COUNTER DISPLAY
M
E
F
JA
IC6001
μPD7502G090
MEMORY COUNTER DISPLAY DRIVE
P53 REEL SENSOR LED
P12 SUPPLY REEL DETECTOR
P11 TAKEUP REEL DETECTOR 2
P10 TAKEUP REEL DETECTOR 1
P42 BATTERY DET
P51 BATTERY B
P52 BATTERY A
P62 DEW IN Ⓛ
RESET
P50 DEW/UNDER CUT Ⓛ
P02/S0 SERIAL DATA (COUNTER)
P60 CAMERA REMOTE Ⓗ
P31 MEMORY COUNTER "0"
P03/SI. SERIAL DATA IN
P33
SERIAL CLK P30
SERIAL CLK P01/SCK
REEL STOP P32
TALLY P43
POWER OFF P13
CL1
VDD
LCD OFF P63
VLC1
VLC2
VLC3
MEMORY BACK-UP
COUNTER RESET P40
MEMORY SW P41
FF/REW/CUE/REV P61
INT1
X1
VSS
Q6013
CLEAR SW6010
MEMORY SW6011
+5V
IC6006
Q6012
Q6015
Q6009
Q6010
Q6034
Q6035
Q6033
IC6002
MN1455AVA
C7 POWER SW OFF Ⓗ
E3 SERIAL DATA 1
RST
SNS0 SERIAL CLK(2)
SNS1 AUTO STOP
C9 TALLY OUT
C5 PRE POWER OFF Ⓗ
OSC
MODE INFORMATION E0
VDD
CSLT
TST
VSS
C0
C1
C2
PAUSE Ⓛ D7
A-DUB Ⓛ D6
REC Ⓛ D5
PLAY Ⓛ D4
FF Ⓛ D3
STOP Ⓛ D2
REW Ⓛ D1
9V OFF Ⓗ D0
SLOW/F. ADV Ⓗ C10
A0
A1
A2
A3
B0
B1
B2
B3
STOP EJECT REW F-F PAUSE REC A-DUB PLAY SLOW
IC6003
MN1455AVB
OSC
VDD
SNS1
CSLT
TST
VSS
SNS0 CLOCK
RST
A0 SERIAL DATA IN
D0
D1 ECHO BACK
D2
STOP POS. B0
EJECT POS. A1
MODE SW POS. B1
TAKEUP PHOTO TR. B2
SUPPLY PHOTO TR. B3
LOADING SNS.LED D7
CAP. REV E0
VV Ⓗ D3
AUDIO EE C11
DELAYED REC C10
FULL ERASE C9
AUDIO REC C8
SPEED FIX Ⓛ C7
PAUSE RESET Ⓛ C6
CURRENT EMPHASIS Ⓛ C5
AUDIO MUTE C4
FF/REW/CUE/REV C3
2³ C2
2² C1
2⁰ E1
UNLOADING E2
E3
REF 177KHz JB 7 TO POWER SECTION
5V BACK-UP P6021 1 TO BACK-UP P.C.B
REF 886KHz JB 8
CAPSTAN REVERSE Ⓗ JD 2 TO SERVO SECTION
VIDEO VV Ⓗ JB 5
AUDIO EE Ⓗ JA 8
DELAYED REC Ⓗ JB 1
FULL ERASE Ⓗ JB 4
AUDIO REC Ⓗ JB 3
TO POWER SECTION
SPEED FIX Ⓛ JC 8
PAUSE RESET Ⓛ JC 4
TO SERVO SECTION
CURRENT EMPHASIS Ⓛ JA 6
AUDIO MUTE Ⓗ JA 7
TO POWER SECTION
2³ Ⓗ JC 3
2² Ⓗ JC 5
2⁰ Ⓗ JC 6
TO SERVO SECTION
UNLOADING Ⓗ JD 8 TO SERVO SECTION
LOADING Ⓗ JD 7 TO SERVO SECTION
LOADING MOTOR DRIVE CIRCUIT
M
LOADING MOTOR
Q6028 Q6029 Q6030
SENSOR LED P6021 4 TO BACK-UP P.C.B
Q6031
SUPPLY PHOTO TR P6020 1 FROM CASSETTE UP UNIT
Q6032
TAKEUP PHOTO TR P6021 3 FROM BACK-UP P.C.B
Q6552 D6551
Q6551 D6552
LED
Q6001 D6001
Q6002 D6002
Q6003 D6003
Q6004 D6004
Q6005 D6005
Q6006 D6006
Q6007 D6007
P6022 1 INDEX SIGNAL FROM MODE SELECT SW
EJECT Ⓛ P6022 7 EJECT POSITION FROM MODE SELECT SW
STOP Ⓛ P6022 3 STOP POSITION FROM MODE SELECT SW
SUB REVIEW
REVIEW
PLAY
PAUSE
EJECT
FF/REW
STOP
SUB EJECT
MOVING CONTACT 2
MOVING CONTACT 1
LOAD
UNLOAD
STOP Ⓗ JD 6 TO SERVO SECTION
PLAY Ⓗ JD 3 TO SERVO SECTION
REC Ⓛ JB 3 TO POWER SECTION
A-DUB Ⓛ JC 1 TO SERVO SECTION
9V OFF Ⓗ JA 5 TO POWER SECTION
SLOW/F. ADV Ⓗ JD 5 TO SERVO SECTION

CHROMINANCE PROCESS BLOCK DIAGRAM

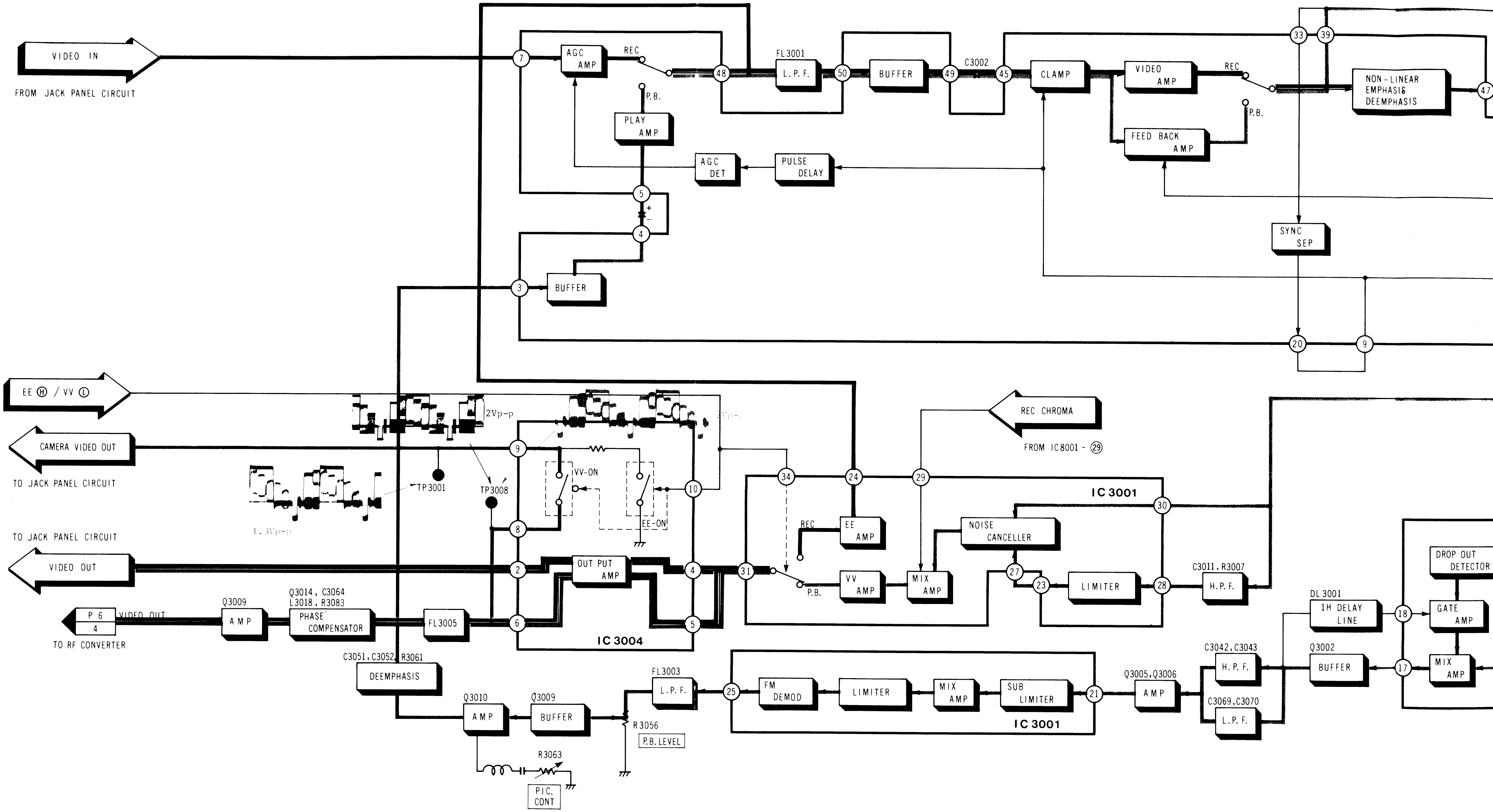

VIDEO IN
FROM JACK PANEL CIRCUIT
P.B. FM IN
FROM IC3003 - ⑩
FL8002
B.P.F.
FL8002
L.P.F.
23
20
19
21
18
17
14
REC
P.B
P.B. AMP
ACC
DETECTOR
BURST GATE
BUFFER
BALANCED MODULATOR
REC
P.B.
BELL FILTER
SECAM Ⓗ -ON
IC8003 (FIC C-5)
FOR EG
R8009,C8001
BELL FILTER
FOR EG
SECAM Ⓗ
FROM IC8003 - ②
1.2Vp-p
TP8002
L8006
42
DELAY
43
APC PHASE COMPARATOR
KILLER PHASE COMPARATOR
KILLER AMP
4.43MHz VXO
REC
P.B
BALANCED MODULATOR
FL8001
L.P.F.
FL8001
B.P.F.
16
33
15
P.B. AMP
REC AMP
REC
P.B.
29
TP8003
1Vp-p
R8015
R8013
R8014
13
FL8003
B.P.F.
TP8001
10
Q3007
IC8001 (FIC C-3)
27
3
4
12
11
40
28
32
APC
C8007
X8001
4.43MHz REF
FROM SERVO
L8007,C8013
DELAY
(P.B. FIELD-ON)
Q8003
R8022
AFC
10
11
fH
160.5fH
(40+1/8)fH
VIDEO IN (FOR HSS)
FROM IC3004 - ⑥
21
WHITE CLIP
SYNC SEP
HORIZONTAL DRIVE SIGNAL GATE
AFC PHASE COMPARATOR
2.508MHz VCO
1/4 RING DIVIDER
0°
90°
180°
270°
90° ROTARY
FSI
OUTPUT AMP
fH
1/160.5 DIVIDER
ROTARY CONTROL
C8033
DL8001
1
3
Q8002
AMP
IC8002 (FIC C-4)
22
15
20
4
3
7
VSS OUT
TO SERVO
7Vp-p
Approx. 15.873kHz
TP8005
HEAD SW PULSE
FROM SERVO
REC +9V IN
SECAM Ⓗ
FROM IC8003 - ②
TP8004
SIGNAL PATH PLAYBACK MODE
SIGNAL PATH RECORD MODE

NCE PROCESS BLOCK DIAGRAM

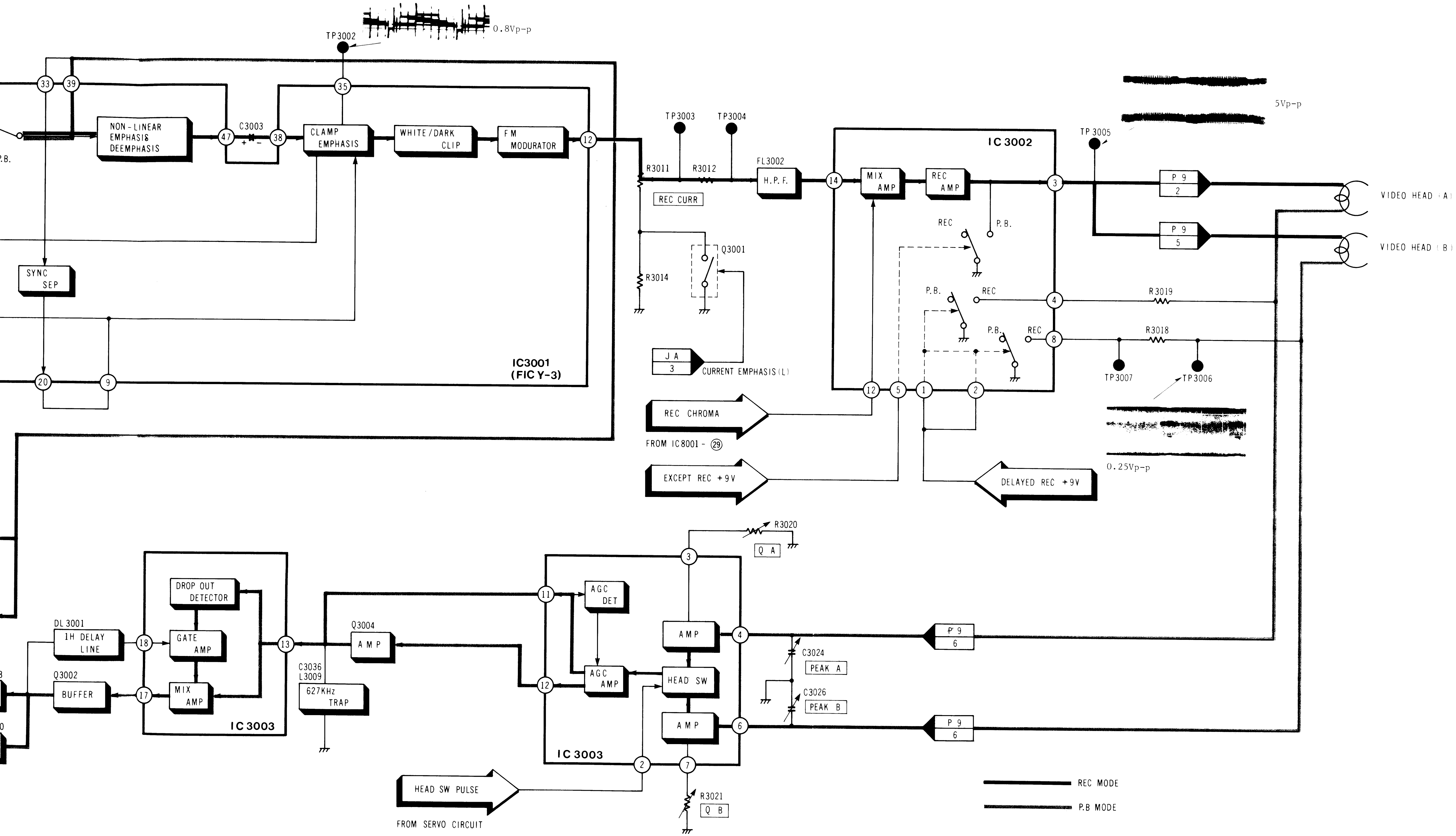


FL8002
B. P. F.
FL8002
L. P. F.
23
20
19
P.B. AMP
REC
P.B
ACC
DETECTOR
BURST GATE
BALANCED MODULATOR
FL8001
L. P. F.
FL8001
B. P. F.
16
33
15
P.B. AMP
REC AMP
REC
P.B.
29
1Vp-p
TP8003
1Vp-p
REC CHROMA LEVEL
R8015
REC CHROMA
TO IC3002 - ⑫
R8013
R8016
Q8001
J A
3
CURRENT EMPHASIS Ⓛ
R8014
P. B. CHROMA
TO IC3001 - ㉙
Q3007
ARTIFICIAL V SYNC
FROM SERVO
18
BELL FILTER
SECAM Ⓗ -ON
IC8003 (FIC C-5)
FOR EG
21
R8009,C8001
BELL FILTER
FOR EG
17
14
BUFFER
1.2Vp-p
TP8002
L8006
42
DELAY
43
APC PHASE COMPARATOR
KILLER PHASE COMPARATOR
KILLER AMP
4.43 MHz VXO
REC
P.B
BALANCED MODULATOR
13
FL8003
B. P. F.
TP8001
10
IC8001 (FIC C-3)
1Vp-p
27
3
4
12
11
40
28
32
APC
C8007
X8001
(P.B. FIELD-ON)
Q8003
L8007, C8013
DELAY
10
R8022
AFC
11
WHITE CLIP
SYNC SEP
HORIZONTAL DRIVE SIGNAL GATE
fH
AFC PHASE COMPARATOR
fH
2.508MHz VCO
160.5fH
1/4 RING DIVIDER
0°
90°
180°
270°
90° ROTARY
(40+1/8)fH
FSI
OUTPUT AMP
1/160.5 DIVIDER
ROTARY CONTROL
IC8003 (FIC C-5)
1
ATT
21
SECAM Ⓗ -ON
PAL
SECAM
19
FOR EG
C8033
DL8001
1
3
Q8002
AMP
IC8002 (FIC C-4)
22
15
20
4
3
7
7Vp-p
TP8005
Approx. 15.873kHz
HEAD SW PULSE
FROM SERVO
REC +9V IN
SECAM Ⓗ
FROM IC8003 - ②
TP8004
SIGNAL PATH PLAYBACK MODE
SIGNAL PATH RECORD MODE

LUMINANCE PROCESS BLOCK DIAGRAM

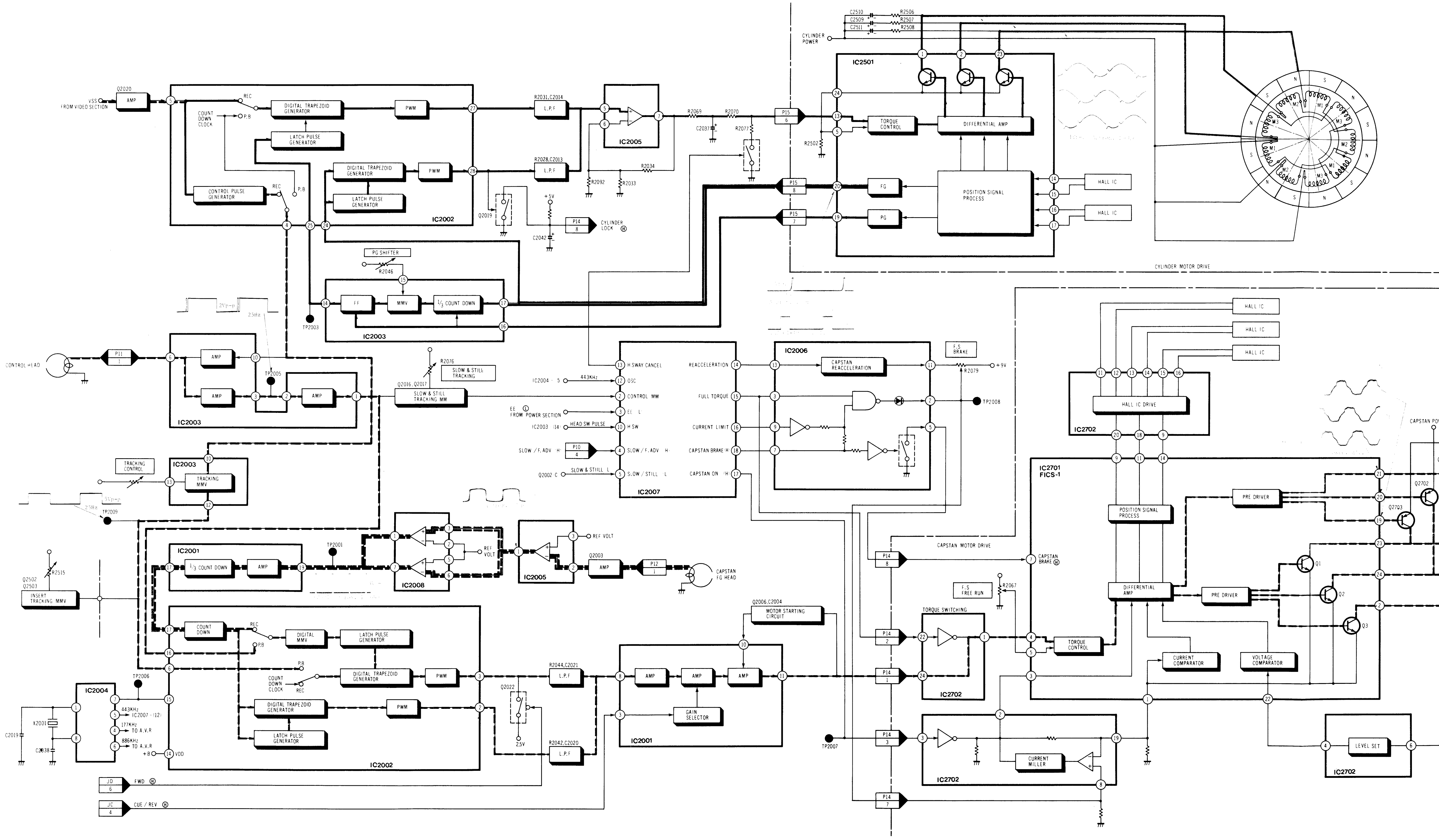


VIDEO IN
FROM JACK PANEL CIRCUIT
AGC AMP
REC
P.B.
PLAY AMP
AGC DET
PULSE DELAY
FL3001
L.P.F.
BUFFER
C3002
CLAMP
VIDEO AMP
REC
P.B.
FEED BACK AMP
NON-LINEAR EMPHASIS DEEMPHASIS
SYNC SEP
BUFFER
EE Ⓗ / VV Ⓛ
CAMERA VIDEO OUT
TO JACK PANEL CIRCUIT
TO JACK PANEL CIRCUIT
VIDEO OUT
P 6
4
VIDEO OUT
TO RF CONVERTER
2Vp-p
2Vp-p
1.3Vp-p
TP3001
TP3008
VV-ON
EE-ON
OUT PUT AMP
IC 3004
Q3009
AMP
Q3014, C3064
L3018, R3083
PHASE COMPENSATOR
FL3005
C3051, C3052, R3061
DEEMPHASIS
Q3010
AMP
Q3009
BUFFER
R3056
P.B. LEVEL
R3063
PIC. CONT
REC CHROMA
FROM IC8001 - ㉙
IC 3001
REC
P.B.
EE AMP
VV AMP
MIX AMP
NOISE CANCELLER
LIMITER
C3011, R3007
H.P.F.
FL3003
L.P.F.
FM DEMOD
LIMITER
MIX AMP
SUB LIMITER
IC 3001
Q3005, Q3006
AMP
C3042, C3043
H.P.F.
C3069, C3070
L.P.F.
Q3002
BUFFER
DL3001
1H DELAY LINE
DROP OUT DETECTOR
GATE AMP
MIX AMP
⑦ ㊽ ㊿ ㊾ ㊺ ㉝ ㊴ ㊼ ⑤ ④ ③ ⑳ ⑨
⑨ ⑧ ② ⑥ ⑩ ④ ⑤ ㉛ ㉞ ㉔ ㉙ ㉚ ㉗ ㉓ ㉘ ㉕ ㉑ ⑱ ⑰

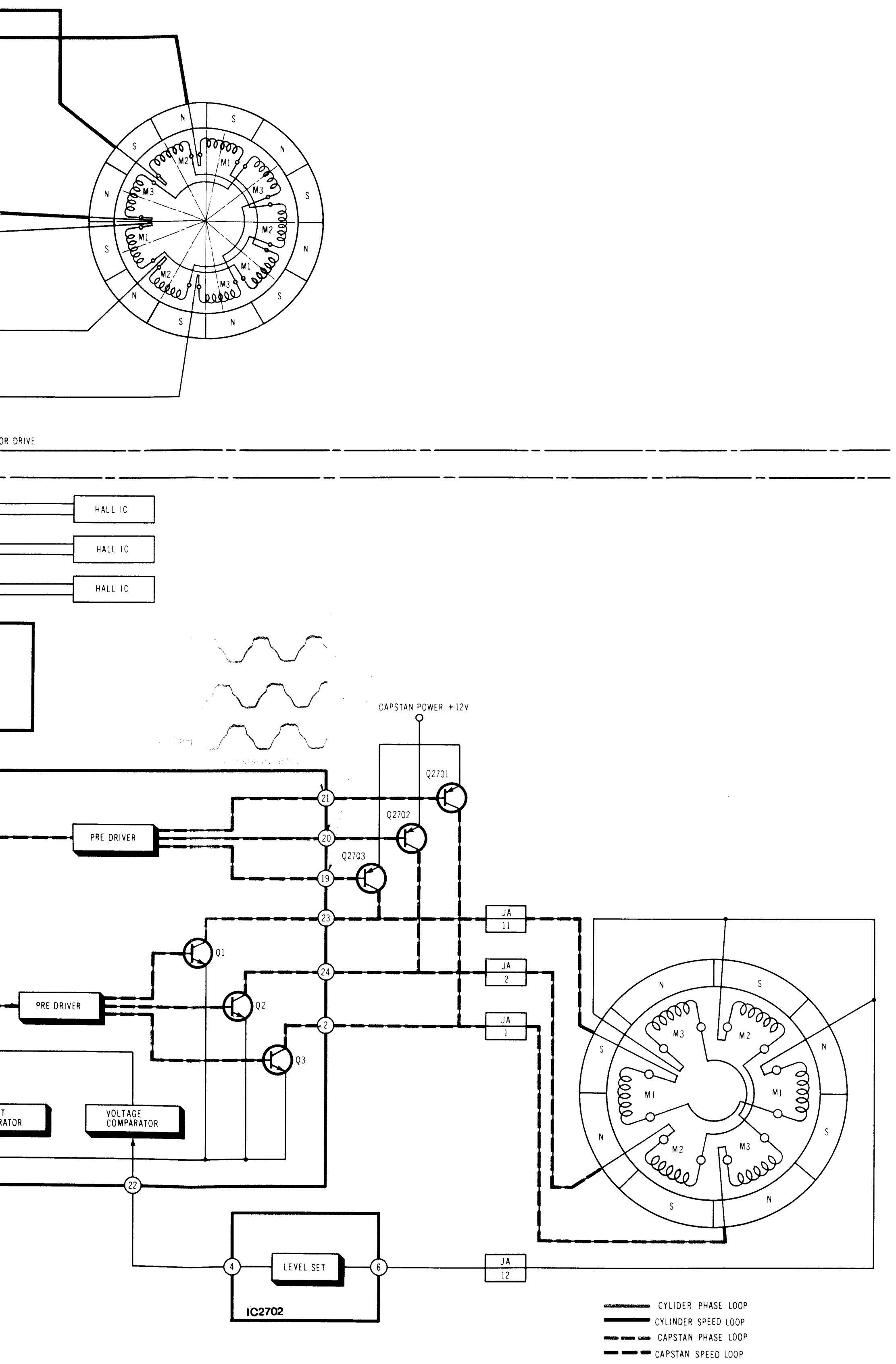


0.8Vp-p
TP3002
33
39
35
NON-LINEAR EMPHASIS DEEMPHASIS
47
C3003
38
CLAMP EMPHASIS
WHITE/DARK CLIP
FM MODURATOR
12
.B.
SYNC SEP
20
9
IC3001 (FIC Y-3)
TP3003
TP3004
R3011
R3012
FL3002
H.P.F.
REC CURR
Q3001
R3014
JA 3
CURRENT EMPHASIS(L)
IC 3002
14
MIX AMP
REC AMP
3
REC
P.B.
P.B.
REC
4
P.B.
REC
8
12
5
1
2
5Vp-p
TP 3005
P9 2
P9 5
VIDEO HEAD (A)
VIDEO HEAD (B)
R3019
R3018
TP3007
TP3006
0.25Vp-p
REC CHROMA
FROM IC8001 - ㉙
EXCEPT REC +9V
DELAYED REC +9V
R3020
Q A
3
DROP OUT DETECTOR
DL3001
1H DELAY LINE
18
GATE AMP
13
Q3004
AMP
11
AGC DET
AMP
4
P9 6
C3024
PEAK A
Q3002
BUFFER
17
MIX AMP
IC 3003
C3036 L3009
627KHz TRAP
12
AGC AMP
HEAD SW
C3026
PEAK B
AMP
6
P9 6
IC 3003
2
7
HEAD SW PULSE
FROM SERVO CIRCUIT
R3021
Q B
REC MODE
P.B MODE

SERVO BLOCK DIAGRAM



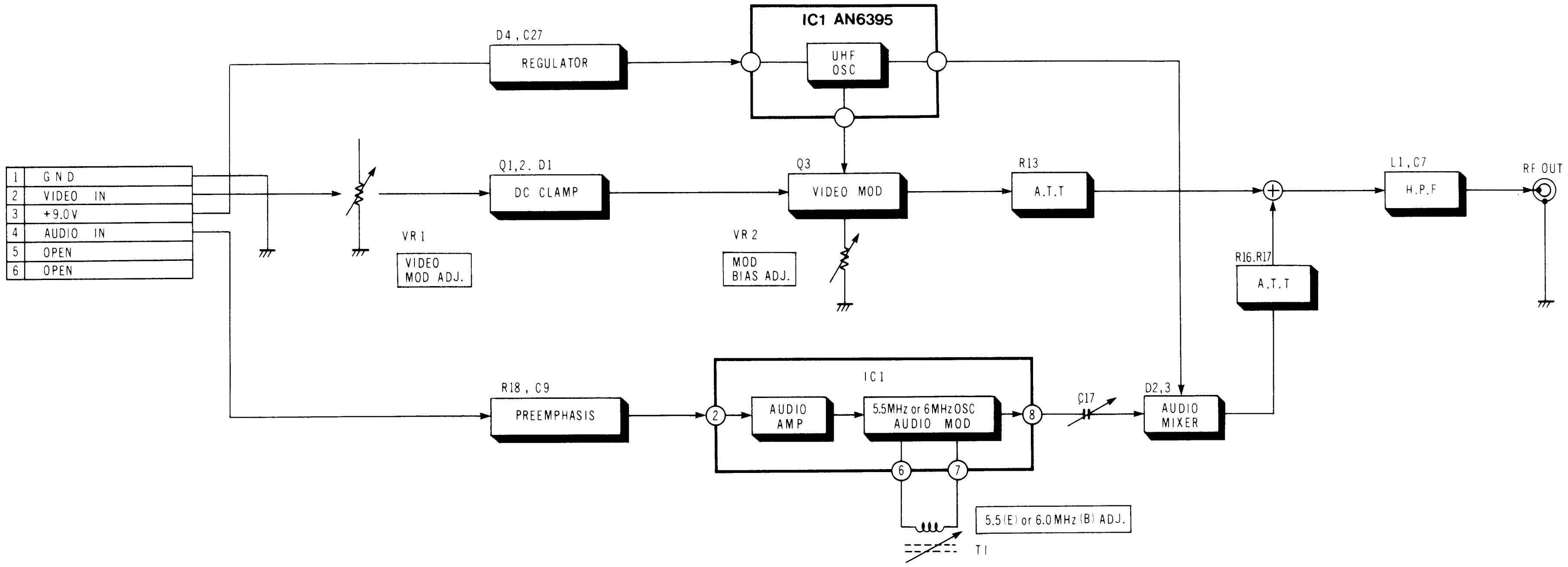
VSS
FROM VIDEO SECTION
Q2020
AMP
REC
P.B
COUNT DOWN CLOCK
DIGITAL TRAPEZOID GENERATOR
LATCH PULSE GENERATOR
PWM
CONTROL PULSE GENERATOR
IC2002
R2031,C2014
R2028,C2013
L.P.F
IC2005
R2092
R2033
R2034
+5V
Q2019
C2042
P14
CYLINDER LOCK Ⓗ
R2069
R2070
C2037
R2077
R2502
P15
CYLINDER POWER
C2510
C2509
C2511
R2506
R2507
R2508
IC2501
TORQUE CONTROL
DIFFERENTIAL AMP
FG
PG
POSITION SIGNAL PROCESS
HALL IC
M1
M2
M3
N
S
CYLINDER MOTOR DRIVE
PG SHIFTER
R2046
FF
MMV
1/3 COUNT DOWN
IC2003
TP2003
2Vp-p
25Hz
CONTROL HEAD
P11
TP2005
IC2003
Q2016, Q2017
R2076
SLOW & STILL TRACKING
SLOW & STILL TRACKING MM
TRACKING CONTROL
TRACKING MMV
TP2009
H.SWAY CANCEL
OSC
CONTROL MM
EE L
H.SW
SLOW / F.ADV H
SLOW / STILL L
REACCELERATION
FULL TORQUE
CURRENT LIMIT
CAPSTAN BRAKE H
CAPSTAN ON H
IC2004 - 5
443KHz
EE Ⓛ
FROM POWER SECTION
IC2003 (14)
HEAD SW PULSE
P10
Q2002 C
IC2007
IC2006
CAPSTAN REACCELERATION
F.S BRAKE
R2079
+9V
TP2008
IC2702
HALL IC DRIVE
IC2701
FICS-1
POSITION SIGNAL PROCESS
DIFFERENTIAL AMP
PRE DRIVER
Q2702
Q2703
Q1
Q2
Q3
CAPSTAN POWER
Q2502
Q2503
R2515
INSERT TRACKING MMV
IC2001
TP2001
IC2008
REF VOLT
Q2003
P12
CAPSTAN FG HEAD
CAPSTAN MOTOR DRIVE
CAPSTAN BRAKE Ⓗ
F.S FREE RUN
R2067
TORQUE SWITCHING
TORQUE CONTROL
CURRENT COMPARATOR
VOLTAGE COMPARATOR
COUNT DOWN
DIGITAL MMV
Q2006,C2004
MOTOR STARTING CIRCUIT
R2044,C2021
R2042,C2020
Q2022
2.5V
GAIN SELECTOR
TP2006
TP2007
X2001
C2019
C2038
443KHz
IC2007 (12)
177KHz
TO A.V.R
886KHz
+B
VDD
JD
FWD Ⓗ
JC
CUE / REV Ⓗ
CURRENT MILLER
LEVEL SET



N
S
N
S
N
S
N
S
N
S
N
S
M1
M2
M3
M1
M2
M3
M1
M2
M3
OR DRIVE
HALL IC
HALL IC
HALL IC
CAPSTAN POWER +12V
Q2701
Q2702
Q2703
PRE DRIVER
21
20
19
23
24
2
Q1
Q2
Q3
PRE DRIVER
JA 11
JA 2
JA 1
JA 12
T
RATOR
VOLTAGE COMPARATOR
22
4
LEVEL SET
6
IC2702
M3
M2
M1
M1
M2
M3

CYLIDER PHASE LOOP
CYLINDER SPEED LOOP
CAPSTAN PHASE LOOP
CAPSTAN SPEED LOOP

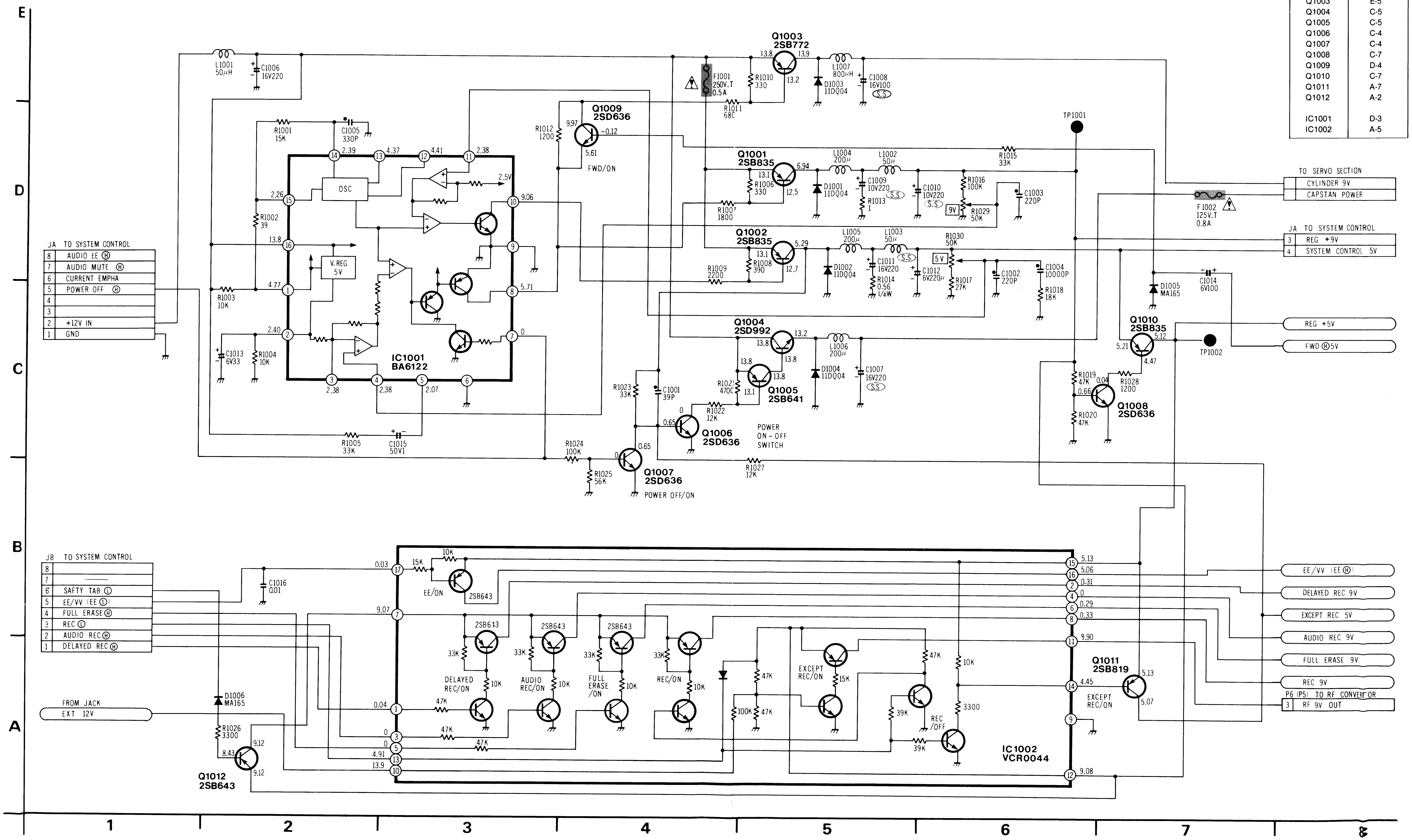
RF CONVERTER BLOCK DIAGRAM



IC1 AN6395
D4, C27
REGULATOR
UHF OSC
1 GND
2 VIDEO IN
3 +9.0V
4 AUDIO IN
5 OPEN
6 OPEN
Q1,2. D1
DC CLAMP
Q3
VIDEO MOD
R13
A.T.T
L1, C7
H.P.F
RF OUT
VR1
VIDEO MOD ADJ.
VR2
MOD BIAS ADJ.
R16.R17
A.T.T
R18, C9
PREEMPHASIS
IC1
2
AUDIO AMP
5.5MHz or 6MHz OSC AUDIO MOD
8
6
7
C17
D2,3
AUDIO MIXER
5.5(E) or 6.0MHz (B) ADJ.
T1

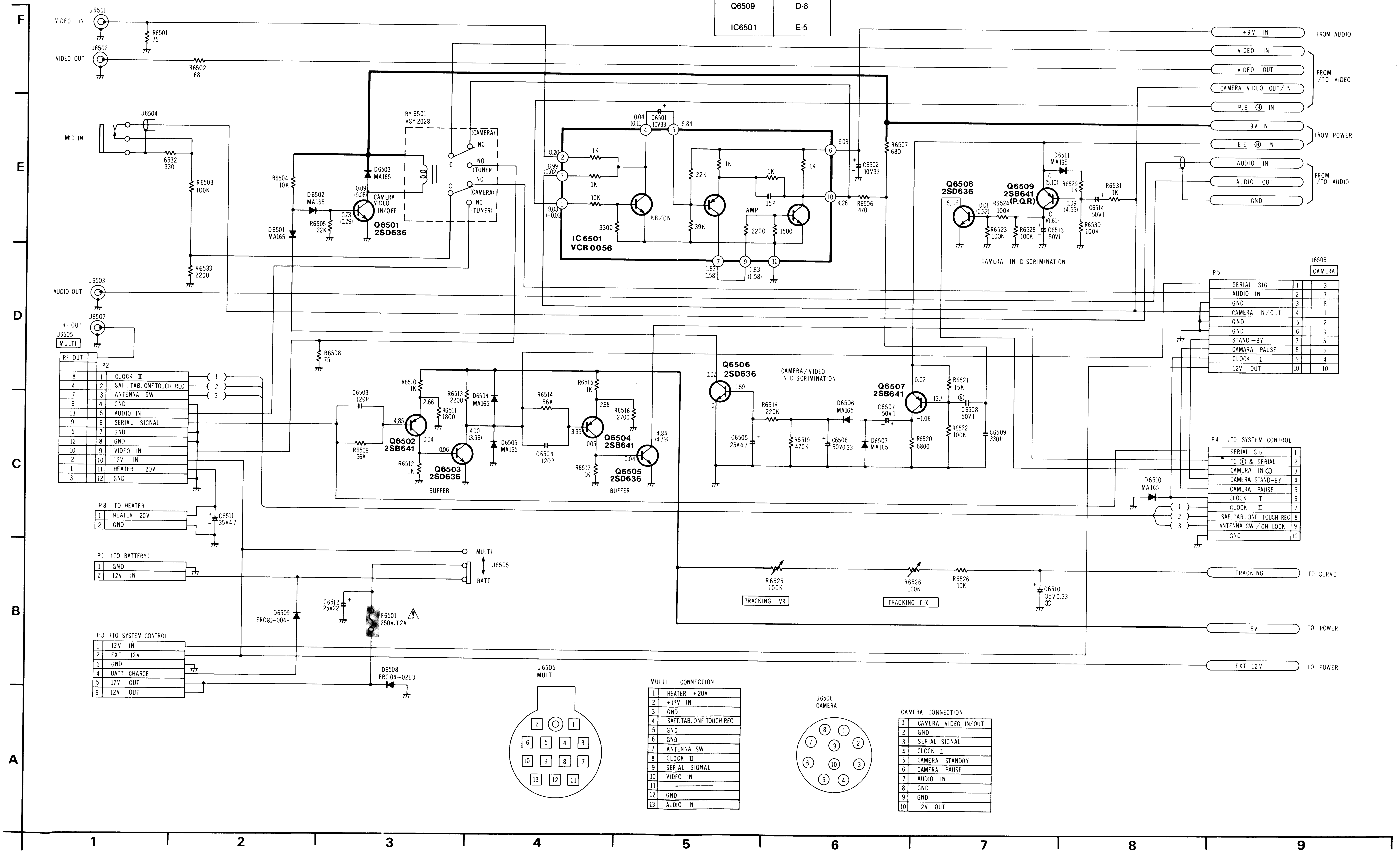
A.V.R. SECTION SCHEMATIC DIAGRAM

A.V.R Schematic	
Q1001	D-5
Q1002	D-5
Q1003	E-5
Q1004	C-5
Q1005	C-5
Q1006	C-4
Q1007	C-4
Q1008	C-7
Q1009	D-4
Q1010	C-7
Q1011	A-7
Q1012	A-2
IC1001	D-3
IC1002	A-5

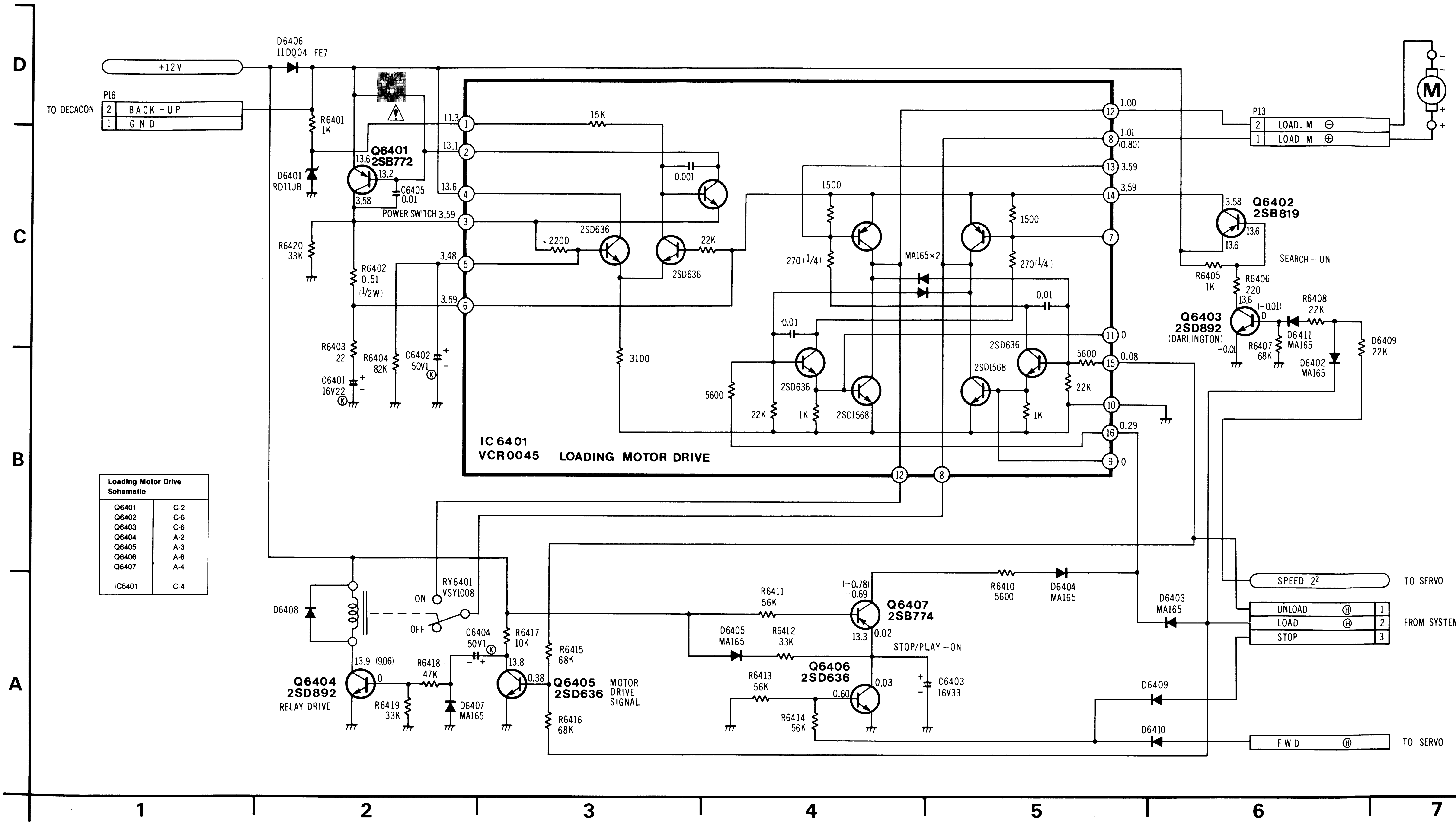

E
D
C
B
A
1
2
3
4
5
6
7
8
JA TO SYSTEM CONTROL
8 AUDIO EE Ⓗ
7 AUDIO MUTE Ⓗ
6 CURRENT EMPHA
5 POWER OFF Ⓗ
4
3
2 +12V IN
1 GND
L1001 50μH
C1006 16V220
R1001 15K
C1005 330P
R1002 39
R1003 10K
C1013 6V33
R1004 10K
R1005 33K
C1015 50V1
OSC
V.REG 5V
IC1001 BA6122
Q1009 2SD636
FWD/ON
R1012 1200
Q1003 2SB772
F1001 250V.T 0.5A
R1010 330
R1011 68C
L1007 800μH
D1003 11DQ04
C1008 16V100
Q1001 2SB835
R1006 330
R1007 1800
L1004 200μ
L1002 50μ
D1001 11DQ04
C1009 10V220
R1013 1
C1010 10V220
R1016 100K
R1029 50K
C1003 220P
R1015 33K
TP1001
Q1002 2SB835
R1009 2200
R1008 390
L1005 200μ
L1003 50μ
D1002 11DQ04
C1011 16V220
R1014 0.56 1/4W
C1012 6V220μ
R1030 50K
R1017 27K
C1002 220P
C1004 10000P
R1018 18K
Q1004 2SD992
L1006 200μ
D1004 11DQ04
C1007 16V220
Q1005 2SB641
R1021 470C
R1022 12K
R1023 33K
C1001 39P
Q1006 2SD636
POWER ON-OFF SWITCH
R1024 100K
R1025 56K
Q1007 2SD636
POWER OFF/ON
R1027 12K
TO SERVO SECTION
CYLINDER 9V
CAPSTAN POWER
F1002 125V.T 0.8A
JA TO SYSTEM CONTROL
3 REG +9V
4 SYSTEM CONTROL 5V
D1005 MA165
C1014 6V100
Q1010 2SB835
TP1002
REG +5V
FWD Ⓗ5V
R1019 47K
R1028 1200
R1020 47K
Q1008 2SD636
JB TO SYSTEM CONTROL
8
7
6 SAFTY TAB Ⓛ
5 EE/VV (EE Ⓛ)
4 FULL ERASE Ⓗ
3 REC Ⓛ
2 AUDIO REC Ⓗ
1 DELAYED REC Ⓗ
C1016 0.01
FROM JACK
EXT 12V
D1006 MA165
R1026 3300
Q1012 2SB643
EE/ON
2SB643
DELAYED REC/ON
AUDIO REC/ON
FULL ERASE /ON
REC/ON
EXCEPT REC/ON
REC /OFF
IC1002 VCR0044
Q1011 2SB819
EXCEPT REC/ON
EE/VV (EE Ⓗ)
DELAYED REC 9V
EXCEPT REC 5V
AUDIO REC 9V
FULL ERASE 9V
REC 9V
P6 (P5) TO RF CONVERTOR
3 RF 9V OUT

JACK PANEL SECTION SCHEMATIC DIAGRAM

Jack Panel Schematic	
Q6501	E-3
Q6502	C-3
Q6503	C-4
Q6504	C-4
Q6505	C-5
Q6506	C-5
Q6507	C-7
Q6508	D-7
Q6509	D-8
IC6501	E-5

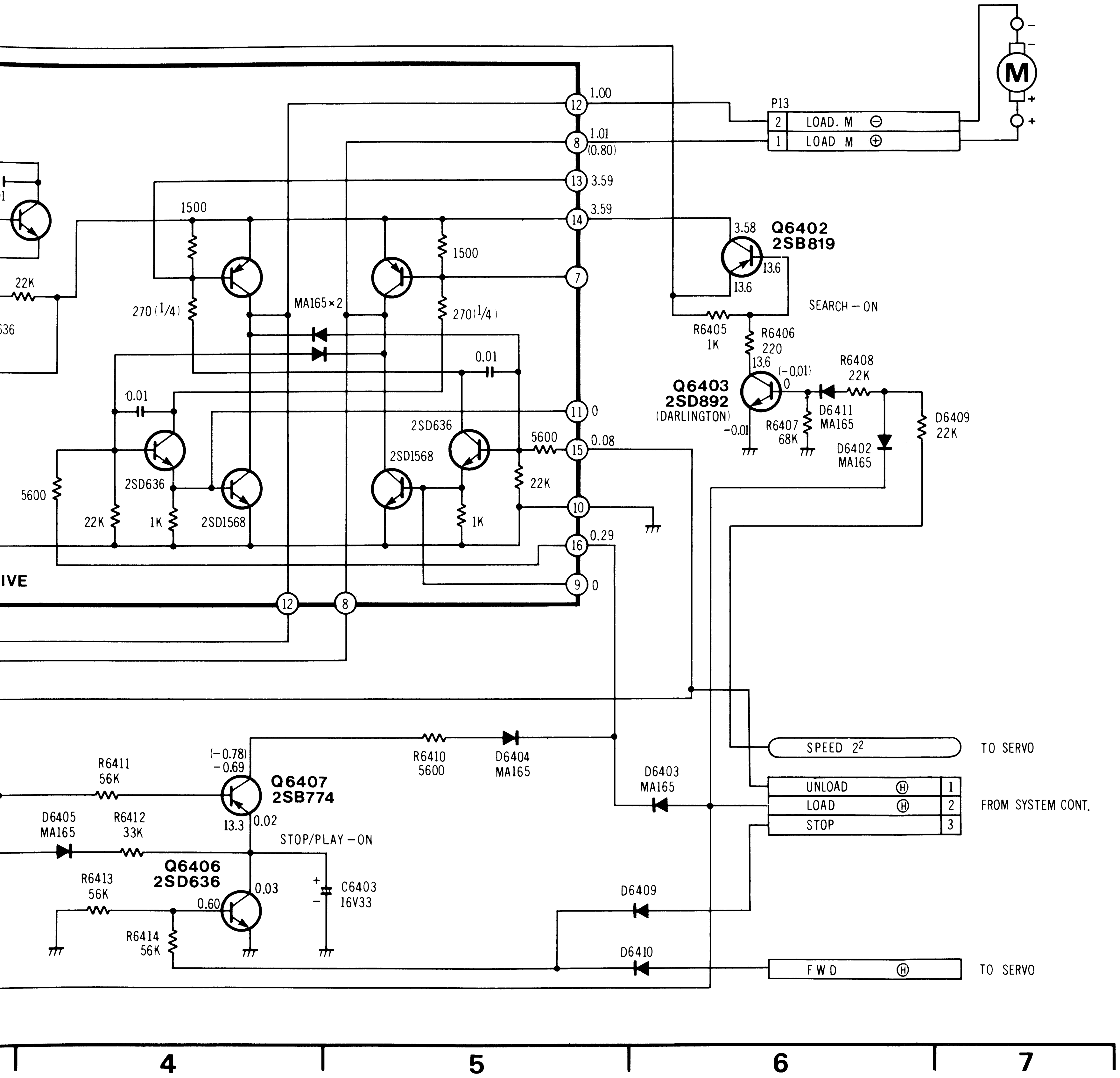

F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
J6501
VIDEO IN
R6501 75
J6502
VIDEO OUT
R6502 68
J6504
MIC IN
6532 330
R6503 100K
R6533 2200
J6503
AUDIO OUT
J6507
RF OUT
J6505
MULTI
RF OUT
P2
1 CLOCK Ⅱ
2 SAF. TAB. ONE TOUCH REC
3 ANTENNA SW
4 GND
5 AUDIO IN
6 SERIAL SIGNAL
7 GND
8 GND
9 VIDEO IN
10 12V IN
11 HEATER 20V
12 GND
P8 (TO HEATER)
1 HEATER 20V
2 GND
C6511 35V4.7
P1 (TO BATTERY)
1 GND
2 12V IN
P3 (TO SYSTEM CONTROL)
1 12V IN
2 EXT 12V
3 GND
4 BATT CHARGE
5 12V OUT
6 12V OUT
D6509 ERC81-004H
C6512 25V22
F6501 250V.T2A
D6508 ERC04-02E3
MULTI
J6505
BATT
RY6501 VSY2028
(CAMERA) NC (TUNER) NO
C
R6504 10K
D6503 MA165
D6502 MA165
D6501 MA165
R6505 22K
0.09 (9.08)
0.73 (0.29)
CAMERA VIDEO IN/OFF
Q6501 2SD636
IC6501 VCR0056
C6501 10V33
0.04 (0.11)
5.84
0.20
6.99 (0.02)
9.03 (-0.03)
1K
10K
3300
P.B/ON
22K
39K
1K
15P
AMP
2200
1500
9.08
4.26
1.63 (1.58)
C6502 10V33
R6506 470
R6507 680
R6508 75
C6503 120P
R6509 56K
R6510 1K
2.66
4.85
R6513 2200
R6511 1800
D6504 MA165
D6505 MA165
0.04
0.06
400 (3.96)
Q6502 2SB641
R6512 1K
Q6503 2SD636
BUFFER
R6514 56K
C6504 120P
R6515 1K
2.98
3.99
0.05
R6516 2700
Q6504 2SB641
R6517 1K
4.84 (4.79)
0.04
Q6505 2SD636
BUFFER
Q6506 2SD636
0.02
0.59
CAMERA/VIDEO IN DISCRIMINATION
R6518 220K
C6505 25V4.7
R6519 470K
C6506 50V0.33
D6506 MA165
D6507 MA165
C6507 50V1
Q6507 2SB641
0.02
13.7
-1.06
R6520 6800
R6521 15K
C6508 50V1
R6522 100K
C6509 330P
Q6508 2SD636
5.16
Q6509 2SB641 (P.Q.R)
0.01 (0.32)
R6524 100K
D6511 MA165
0 (5.10)
R6529 1K
0 (0.61)
0.09 (4.59)
R6531 1K
C6514 50V1
R6523 100K
R6528 100K
C6513 50V1
R6530 100K
CAMERA IN DISCRIMINATION
+9V IN
FROM AUDIO
VIDEO IN
VIDEO OUT
FROM /TO VIDEO
CAMERA VIDEO OUT/IN
P.B Ⓗ IN
9V IN
FROM POWER
E E Ⓗ IN
AUDIO IN
AUDIO OUT
GND
FROM /TO AUDIO
J6506
CAMERA
P5
SERIAL SIG 1 3
AUDIO IN 2 7
GND 3 8
CAMERA IN/OUT 4 1
GND 5 2
GND 6 9
STAND-BY 7 5
CAMARA PAUSE 8 6
CLOCK Ⅰ 9 4
12V OUT 10 10
P4 TO SYSTEM CONTROL
SERIAL SIG 1
TC Ⓛ & SERIAL 2
CAMERA IN Ⓛ 3
CAMERA STAND-BY 4
CAMERA PAUSE 5
CLOCK Ⅰ 6
CLOCK Ⅱ 7
SAF. TAB. ONE TOUCH REC 8
ANTENNA SW / CH LOCK 9
GND 10
D6510 MA165
R6525 100K
TRACKING VR
R6526 100K
TRACKING FIX
R6526 10K
C6510 35V0.33
TRACKING
TO SERVO
5V
TO POWER
EXT 12V
TO POWER
J6505 MULTI
MULTI CONNECTION
1 HEATER +20V
2 +12V IN
3 GND
4 SAFT. TAB. ONE TOUCH REC
5 GND
6 GND
7 ANTENNA SW
8 CLOCK Ⅱ
9 SERIAL SIGNAL
10 VIDEO IN
11
12 GND
13 AUDIO IN
J6506 CAMERA
CAMERA CONNECTION
1 CAMERA VIDEO IN/OUT
2 GND
3 SERIAL SIGNAL
4 CLOCK Ⅰ
5 CAMERA STANDBY
6 CAMERA PAUSE
7 AUDIO IN
8 GND
9 GND
10 12V OUT

LOADING MOTOR DRIVE SECTION SCHEMATIC DIAGRAM



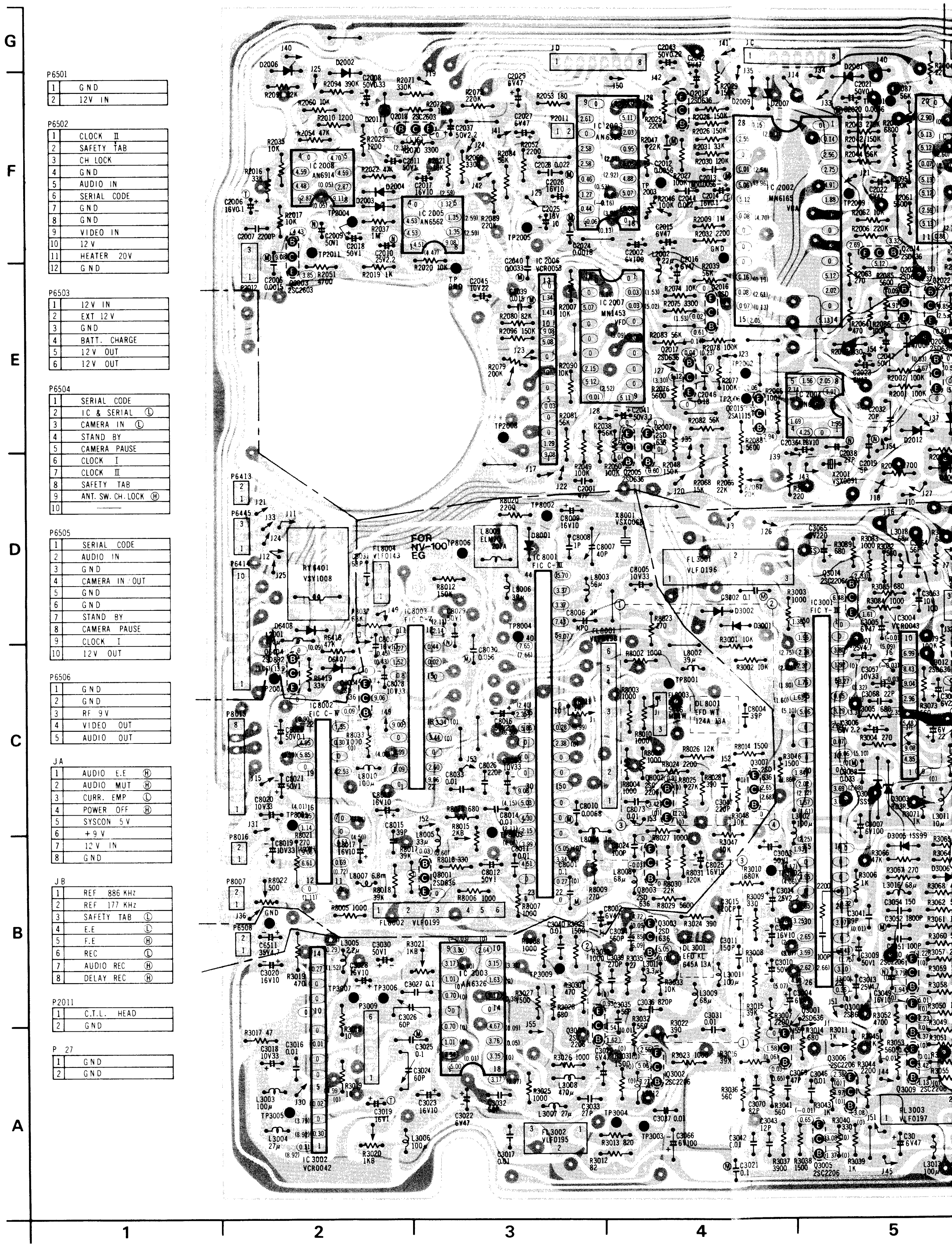
D
C
B
A
1
2
3
4
5
6
7
+12V
D6406
11DQ04 FE7
TO DECACON
P16
2 BACK-UP
1 GND
R6421
1K
R6401
1K
D6401
RD11JB
Q6401
2SB772
13.6
13.2
3.58
C6405
0.01
POWER SWITCH 3.59
11.3
13.1
13.6
R6420
33K
R6402
0.51
(1/2W)
3.48
3.59
R6403
22
C6401
16V22
R6404
82K
C6402
50V1
15K
0.001
2200
2SD636
2SD636
22K
3100
IC6401
VCR0045
LOADING MOTOR DRIVE
1500
1500
270 (1/4)
270 (1/4)
MA165×2
0.01
0.01
2SD636
2SD636
2SD1568
2SD1568
5600
5600
22K
22K
1K
1K
1.00
1.01
(0.80)
3.59
3.59
0
0.08
0.29
0
P13
2 LOAD. M ⊖
1 LOAD M ⊕
M
Q6402
2SB819
3.58
13.6
13.6
SEARCH-ON
R6405
1K
R6406
220
Q6403
2SD892
(DARLINGTON)
13.6
(-0.01)
0
-0.01
R6407
68K
D6411
MA165
R6408
22K
D6402
MA165
D6409
22K
RY6401
VSY1008
ON
OFF
D6408
Q6404
2SD892
RELAY DRIVE
13.9 (9.06)
0
R6418
47K
R6419
33K
D6407
MA165
C6404
50V1
R6417
10K
13.8
0.38
Q6405
2SD636
MOTOR DRIVE SIGNAL
R6415
68K
R6416
68K
R6411
56K
D6405
MA165
R6412
33K
(-0.78)
-0.69
Q6407
2SB774
13.3
0.02
STOP/PLAY-ON
Q6406
2SD636
0.03
0.60
R6413
56K
R6414
56K
C6403
16V33
R6410
5600
D6404
MA165
D6403
MA165
D6409
D6410
SPEED 2²
TO SERVO
UNLOAD Ⓗ 1
LOAD Ⓗ 2
STOP 3
FROM SYSTEM
FWD Ⓗ
TO SERVO

Loading Motor Drive Schematic	
Q6401	C-2
Q6402	C-6
Q6403	C-6
Q6404	A-2
Q6405	A-3
Q6406	A-6
Q6407	A-4
IC6401	C-4


1.00
1.01
(0.80)
3.59
3.59
P13
2
1
LOAD. M ⊖
LOAD M ⊕
M
1500
1500
22K
270 (1/4)
270 (1/4)
MA165×2
0.01
0.01
3.58
Q6402
2SB819
13.6
13.6
SEARCH – ON
R6405
1K
R6406
220
13.6
(–0.01)
0
Q6403
2SD892
(DARLINGTON)
–0.01
R6407
68K
D6411
MA165
R6408
22K
D6402
MA165
D6409
22K
2SD636
2SD1568
2SD636
2SD1568
5600
5600
22K
1K
1K
22K
0
0.08
0.29
0
IVE
12
8
13
14
7
11
15
10
16
9
R6411
56K
(–0.78)
–0.69
Q6407
2SB774
13.3
0.02
R6410
5600
D6404
MA165
D6403
MA165
D6405
MA165
R6412
33K
STOP/PLAY – ON
R6413
56K
Q6406
2SD636
0.03
0.60
C6403
16V33
R6414
56K
D6409
D6410
SPEED 2²
TO SERVO
UNLOAD Ⓗ
LOAD Ⓗ
STOP
1
2
3
FROM SYSTEM CONT.
FWD Ⓗ
TO SERVO
4
5
6
7

MAIN (A.V.R., SERVO, LUMINANCE & CHROMINANCE, AUDIO, LOADING MOTO

[VEP03137A; NV-100E/B: VEP03137B; NV-100EG]


G
F
E
D
C
B
A
1
2
3
4
5
FOR NV-100 EG

P6501

1	GND
2	12V IN

P6502

1	CLOCK Ⅱ
2	SAFETY TAB
3	CH LOCK
4	GND
5	AUDIO IN
6	SERIAL CODE
7	GND
8	GND
9	VIDEO IN
10	12 V
11	HEATER 20V
12	GND

P6503

1	12V IN
2	EXT 12V
3	GND
4	BATT. CHARGE
5	12V OUT
6	12V OUT

P6504

1	SERIAL CODE
2	IC & SERIAL Ⓛ
3	CAMERA IN Ⓛ
4	STAND BY
5	CAMERA PAUSE
6	CLOCK Ⅰ
7	CLOCK Ⅱ
8	SAFETY TAB
9	ANT. SW. CH. LOCK Ⓗ
10	———

P6505

1	SERIAL CODE
2	AUDIO IN
3	GND
4	CAMERA IN / OUT
5	GND
6	GND
7	STAND BY
8	CAMERA PAUSE
9	CLOCK Ⅰ
10	12V OUT

P6506

1	GND
2	GND
3	RF 9V
4	VIDEO OUT
5	AUDIO OUT

JA

1	AUDIO E.E Ⓗ
2	AUDIO MUT Ⓗ
3	CURR. EMP Ⓛ
4	POWER OFF Ⓗ
5	SYSCON 5V
6	+9V
7	12V IN
8	GND

JB

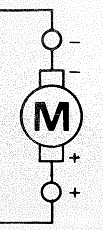
1	REF 886 KHz
2	REF 177 KHz
3	SAFETY TAB Ⓛ
4	E.E Ⓛ
5	F.E Ⓗ
6	REC Ⓛ
7	AUDIO REC Ⓗ
8	DELAY REC Ⓗ

P2011

1	C.T.L. HEAD
2	GND

P 27

1	GND
2	GND



O SERVO

ROM SYSTEM CONT.

O SERVO

7

MAIN (A.V.R., SERVO, LUMINANCE & CHROMINANCE, AUDIO, LOADING MOTOR DRIVE AND JACK PANEL SECTION) P.C.B UNIT
[VEP03137A; NV-100E/B: VEP03137B; NV-100EG]

NOTE: UNLESS OTHERWISE SPECIFIED,
UNLESS OTHERWISE SPECIFIED,

P6501

1	GND
2	12V IN

P6502

1	CLOCK Ⅱ
2	SAFETY TAB
3	CH LOCK
4	GND
5	AUDIO IN
6	SERIAL CODE
7	GND
8	GND
9	VIDEO IN
10	12 V
11	HEATER 20V
12	GND

P6503

1	12V IN
2	EXT 12V
3	GND
4	BATT. CHARGE
5	12V OUT
6	12V OUT

P6504

1	SERIAL CODE
2	IC & SERIAL Ⓛ
3	CAMERA IN Ⓛ
4	STAND BY
5	CAMERA PAUSE
6	CLOCK Ⅰ
7	CLOCK Ⅱ
8	SAFETY TAB
9	ANT. SW. CH. LOCK Ⓗ
10	—

P6505

1	SERIAL CODE
2	AUDIO IN
3	GND
4	CAMERA IN / OUT
5	GND
6	GND
7	STAND BY
8	CAMERA PAUSE
9	CLOCK Ⅰ
10	12V OUT

P6506

1	GND
2	GND
3	RF 9V
4	VIDEO OUT
5	AUDIO OUT

JA

1	AUDIO E.E Ⓗ
2	AUDIO MUT Ⓗ
3	CURR. EMP Ⓛ
4	POWER OFF Ⓗ
5	SYSCON 5V
6	+9V
7	12V IN
8	GND

JB

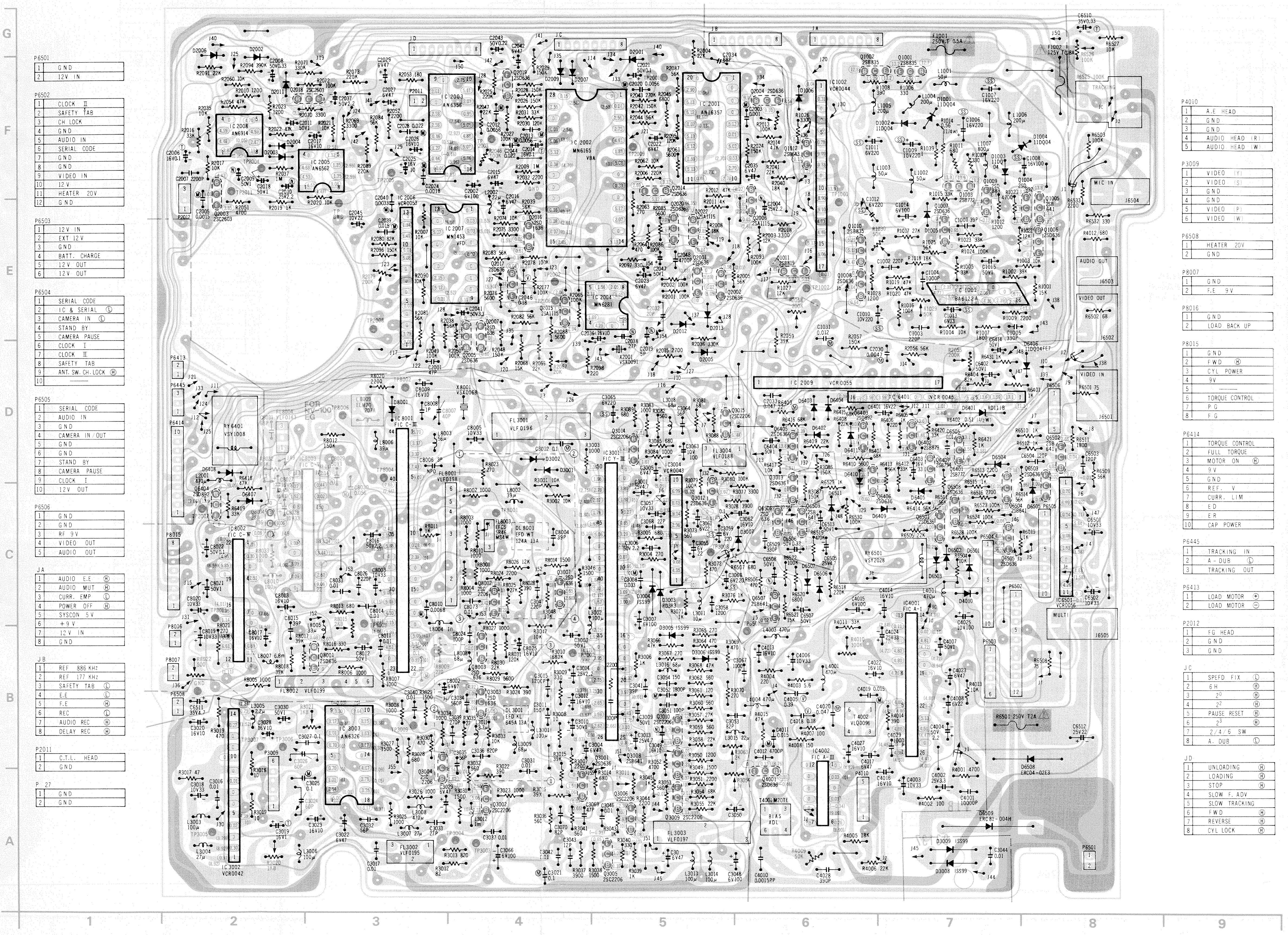
1	REF 886 KHz
2	REF 177 KHz
3	SAFETY TAB Ⓛ
4	E.E Ⓛ
5	F.E Ⓗ
6	REC Ⓛ
7	AUDIO REC Ⓗ
8	DELAY REC Ⓗ

P2011

1	C.T.L. HEAD
2	GND

P 27

1	GND
2	GND


G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
MIC IN
AUDIO OUT
VIDEO OUT
VIDEO IN
TRACKING
MULTI
FOR NV-100 EG

P4010

1	A.E HEAD
2	GND
3	GND
4	AUDIO HEAD (R)
5	AUDIO HEAD (W)

P3009

1	VIDEO (Y)
2	VIDEO (S)
3	GND
4	GND
5	VIDEO (P)
6	VIDEO (W)

P6508

1	HEATER 20V
2	GND

P8007

1	GND
2	F.E 9V

P8016

1	GND
2	LOAD BACK UP

P8015

1	GND
2	FWD Ⓗ
3	CYL POWER
4	9V
5	—
6	TORQUE CONTROL
7	P G
8	F G

P6414

1	TORQUE CONTROL
2	FULL TORQUE
3	MOTOR ON Ⓗ
4	9V
5	GND
6	REF. V
7	CURR. LIM
8	E D
9	E R
10	CAP POWER

P6445

1	TRACKING IN
2	A - DUB Ⓛ
3	TRACKING OUT

P6413

1	LOAD MOTOR ⊕
2	LOAD MOTOR ⊖

P2012

1	FG HEAD
2	GND
3	GND

JC

1	SPEFD FIX Ⓛ
2	6H Ⓗ
3	2^0 Ⓗ
4	2^2 Ⓗ
5	PAUSE RESET Ⓗ
6	2^3 Ⓗ
7	2/4/6 SW
8	A. DUB Ⓛ

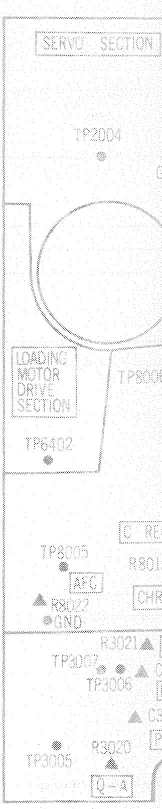
JD

1	UNLOADING Ⓗ
2	LOADING Ⓗ
3	STOP Ⓗ
4	SLOW F. ADV
5	SLOW TRACKING
6	FWD Ⓗ
7	REVERSE Ⓗ
8	CYL LOCK Ⓗ

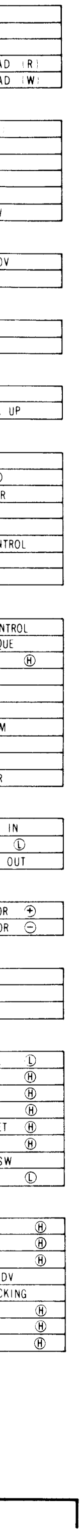
MAIN P.C.B	
A.V.R Section	
Q1001	F-7
Q1002	F-6
Q1003	E-7
Q1004	E-7
Q1005	E-7
Q1006	E-7
Q1007	E-7
Q1008	E-6
Q1009	E-7
Q1010	E-6
Q1011	E-6
Q1012	E-6
IC1001	E-7
IC1002	E-6

MAIN P.C.B	
Jack Panel Section	
Q6501	C-7
Q6502	C-8
Q6503	C-8
Q6504	C-7
Q6505	C-7
Q6506	C-6
Q6507	B-6
Q6508	C-7
Q6509	C-6
IC6501	C-8

MA
Load
Q
Q
Q
Q
Q
Q
Q
IC


SERVO SECTION
TP2004
LOADING MOTOR DRIVE SECTION
TP8005
TP6402
AFC
R8022
GND
TP3007
TP3008
R3020
TP3005
Q-A

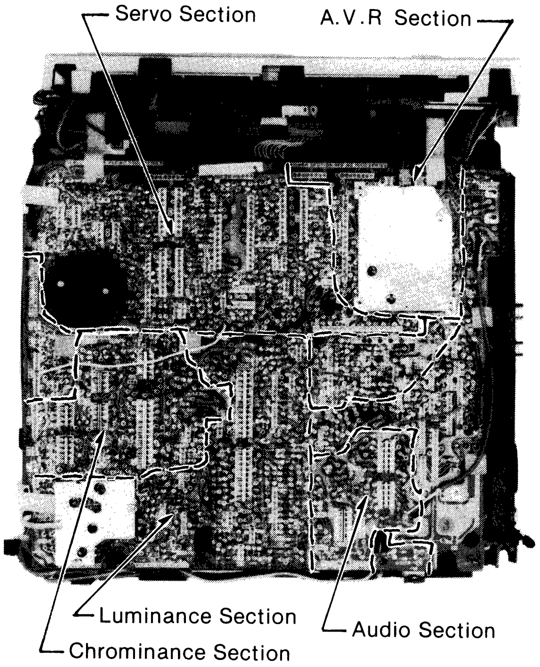
NOTE: UNLESS OTHERWISE SPECIFIED, ALL DIODES ARE MA165
UNLESS OTHERWISE SPECIFIED, ALL Tr's ARE 2SD636 (NPN TYPE)

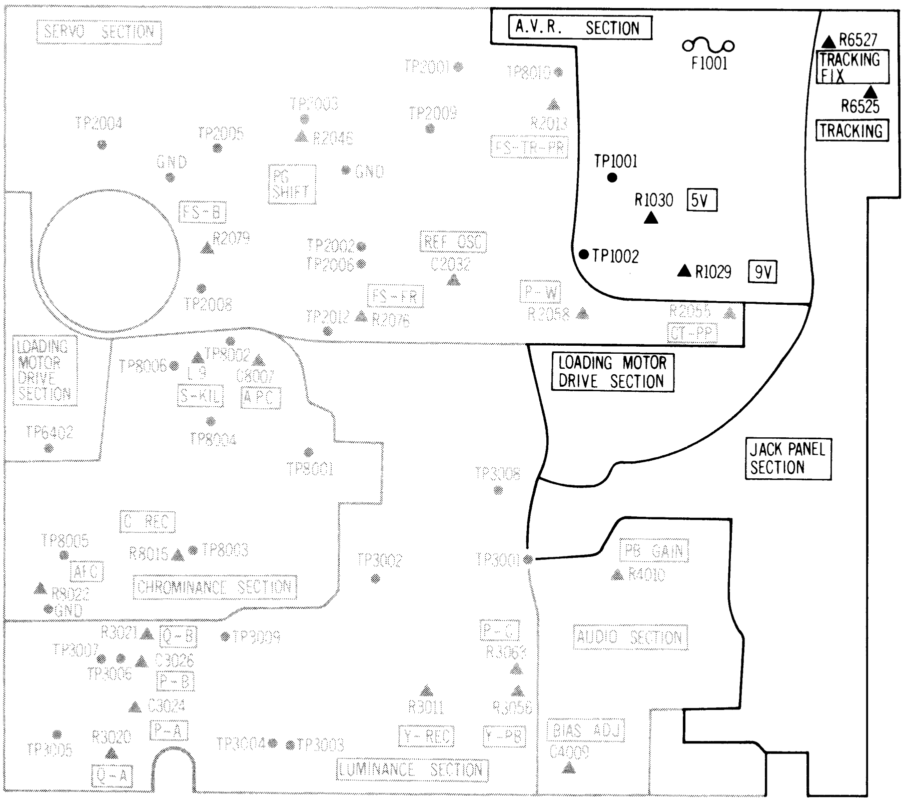

AD (R)
AD (W)
V
OV
UP
O
R
NTROL
NTROL
QUE
Ⓗ
M
R
IN
Ⓛ
OUT
OR ⊕
OR ⊖
Ⓛ
Ⓗ
Ⓗ
Ⓗ
ET Ⓗ
Ⓗ
SW
Ⓛ
Ⓗ
Ⓗ
Ⓗ
DV
CKING
Ⓗ
Ⓗ
Ⓗ

MAIN P.C.B	
A.V.R Section	
Q1001	F-7
Q1002	F-6
Q1003	E-7
Q1004	E-7
Q1005	E-7
Q1006	E-7
Q1007	E-7
Q1008	E-6
Q1009	E-7
Q1010	E-6
Q1011	E-6
Q1012	E-6
IC1001	E-7
IC1002	E-6

MAIN P.C.B	
Loading motor Drive Section	
Q6401	C-7
Q6402	C-7
Q6403	C-6
Q6404	C-2
Q6405	C-6
Q6406	C-6
Q6407	C-7
IC6401	C-7

MAIN P.C.B	
Jack Panel Section	
Q6501	C-7
Q6502	C-8
Q6503	C-8
Q6504	C-7
Q6505	C-7
Q6506	C-6
Q6507	B-6
Q6508	C-7
Q6509	C-6
IC6501	C-8

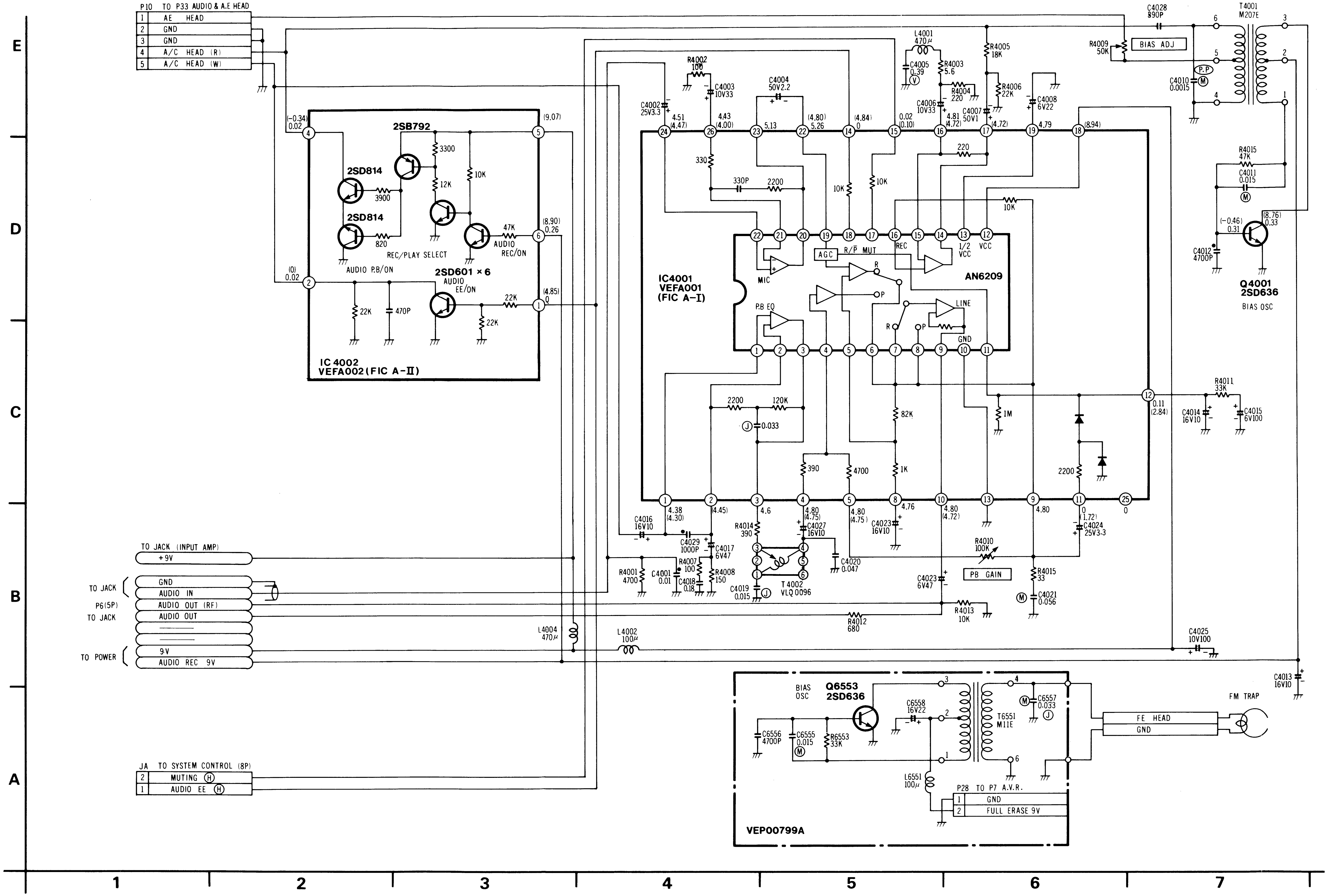

Servo Section
A.V.R Section
Luminance Section
Audio Section
Chrominance Section


SERVO SECTION
TP2001
TP8010
TP2003
R2046
TP2009
R2013
FS-TR-PR
TP2004
TP2005
GND
PG SHIFT
GND
FS-B
R2079
TP2002
TP2006
REF OSC
C2032
TP2008
FS-FR
TP2012
R2076
P-W
R2058
R2055
CT-PP
A.V.R. SECTION
F1001
R6527
TRACKING FIX
R6525
TRACKING
TP1001
R1030
5V
TP1002
R1029
9V
LOADING MOTOR DRIVE SECTION
TP6402
TP8006
TP8002
L9
C8007
S-KIL
APC
TP8004
TP8001
LOADING MOTOR DRIVE SECTION
JACK PANEL SECTION
TP3008
C REC
TP8005
R8015
TP8003
AFC
R8022
GND
CHROMINANCE SECTION
TP3002
TP3001
PB GAIN
R4010
R3021
Q-B
TP3009
TP3007
TP3006
C3026
P-B
C3024
P-C
R3063
AUDIO SECTION
R3011
R3056
TP3005
R3020
P-A
Q-A
TP3004
TP3003
Y-REC
Y-PB
LUMINANCE SECTION
BIAS ADJ
C4009

AUDIO SECTION SCHEMATIC DIAGRAM

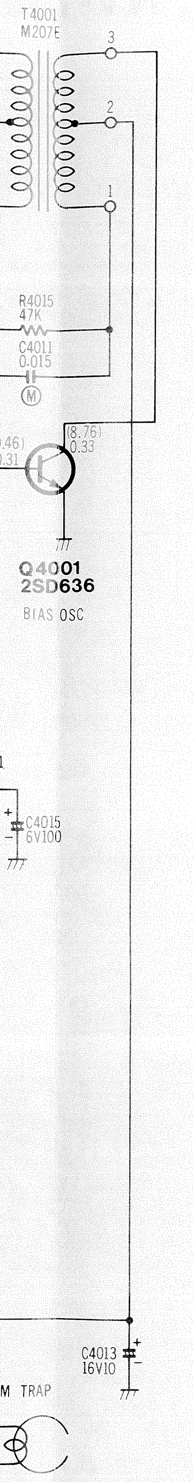
THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRAKETS (   ) ON THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR SIGNAL.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRAKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

Audio Schematic	
Q4001	D-7
Q6553	A-5
IC4001 IC4002	C-5 D-3



P10 TO P33 AUDIO & A.E HEAD
1 AE HEAD
2 GND
3 GND
4 A/C HEAD (R)
5 A/C HEAD (W)
2SB792
2SD814
2SD814
3300
12K
10K
3900
820
47K
AUDIO REC/ON
REC/PLAY SELECT
AUDIO P.B/ON
2SD601 × 6
AUDIO EE/ON
22K
470P
22K
22K
IC 4002
VEFA002 (FIC A-II)
(-0.34) 0.02
(9.07)
(8.90) 0.26
(0) 0.02
(4.85) 0
L4001 470μ
C4005 0.39
R4003 5.6
R4004 220
R4005 18K
R4006 22K
C4006 10V33
C4007 50V1
C4008 6V22
R4002 100
C4003 10V33
C4004 50V2.2
C4002 25V3.3
C4028 890P
R4009 50K
BIAS ADJ
T4001 M207E
C4010 0.0015
P.P
IC4001
VEFA001
(FIC A-I)
AN6209
MIC
P.B EQ
AGC
R/P MUT
REC
1/2 VCC
VCC
LINE
GND
330
330P
2200
10K
10K
220
10K
2200
120K
0.033
82K
390
4700
1K
1M
2200
R4015 47K
C4011 0.015
(-0.46) 0.31
(8.76) 0.33
C4012 4700P
Q4001
2SD636
BIAS OSC
R4011 33K
C4014 16V10
C4015 6V100
0.11 (2.84)
C4016 16V10
C4029 1000P
C4017 6V47
R4014 390
C4027 16V10
C4023 16V10
R4001 4700
C4001 0.01
R4007 100
C4018 0.18
R4008 150
C4019 0.015
T4002 VLQ0096
C4020 0.047
C4023 6V47
R4010 100K
PB GAIN
R4015 33
C4021 0.056
C4024 25V3.3
R4013 10K
R4012 680
C4025 10V100
C4013 16V10
L4004 470μ
L4002 100μ
TO JACK (INPUT AMP)
+9V
TO JACK
GND
AUDIO IN
AUDIO OUT (RF)
P6(5P) TO JACK
AUDIO OUT
TO POWER
9V
AUDIO REC 9V
JA TO SYSTEM CONTROL (8P)
2 MUTING H
1 AUDIO EE H
BIAS OSC
Q6553
2SD636
C6558 16V22
C6556 4700P
C6555 0.015
R6553 33K
T6551 M11E
C6557 0.033
L6551 100μ
P28 TO P7 A.V.R.
1 GND
2 FULL ERASE 9V
VEP00799A
FE HEAD
GND
FM TRAP
E
D
C
B
A
1
2
3
4
5
6
7

BRAKETS (   ) ON
L.
BRAKETS ON THIS


T4001
M207E
R4015
47K
C4011
0.015
Q4001
2SD636
BIAS OSC
C4015
6V100
C4013
16V10
M TRAP

MAIN (LUMINANCE & CHROMINANCE, AUDIO, LOADING MOTOR DRIVE AND JACK PANEL SECTION) P.C.B UNIT

5	CAMERA PAUSE
6	CLOCK Ⅰ
7	CLOCK Ⅱ
8	SAFETY TAB
9	ANT. SW. CH. LOCK Ⓗ
10	———

P6505

1	SERIAL CODE
2	AUDIO IN
3	GND
4	CAMERA IN / OUT
5	GND
6	GND
7	STAND BY
8	CAMERA PAUSE
9	CLOCK Ⅰ
10	12V OUT

P6506

1	GND
2	GND
3	RF 9V
4	VIDEO OUT
5	AUDIO OUT

JA

1	AUDIO E.E Ⓗ
2	AUDIO MUT Ⓗ
3	CURR. EMP Ⓛ
4	POWER OFF Ⓗ
5	SYSCON 5V
6	+9V
7	12V IN
8	GND

JB

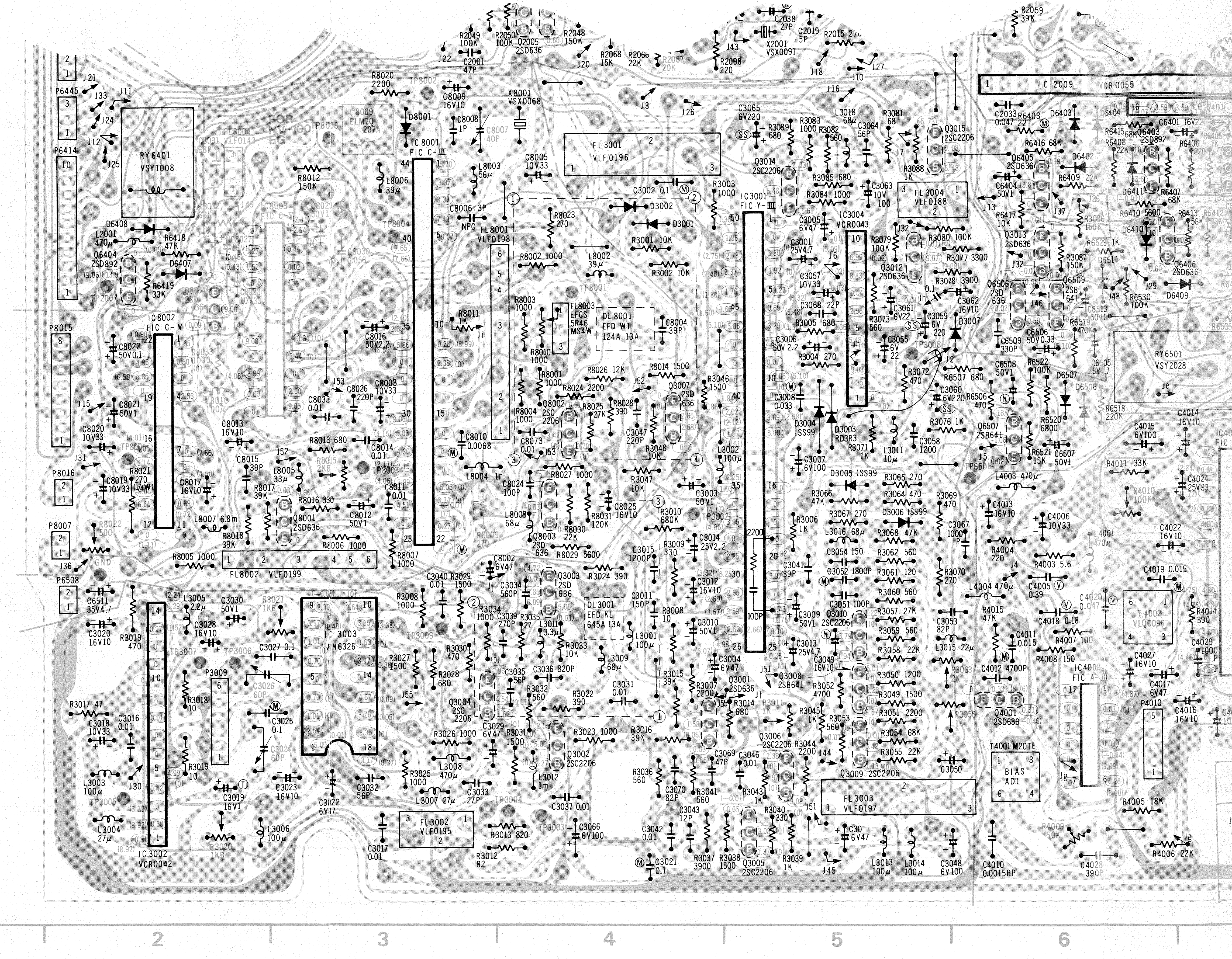
1	REF ·886 KHz
2	REF 177 KHz
3	SAFETY TAB Ⓛ
4	E.E Ⓛ
5	F.E Ⓗ
6	REC Ⓛ
7	AUDIO REC Ⓗ
8	DELAY REC Ⓗ

P2011

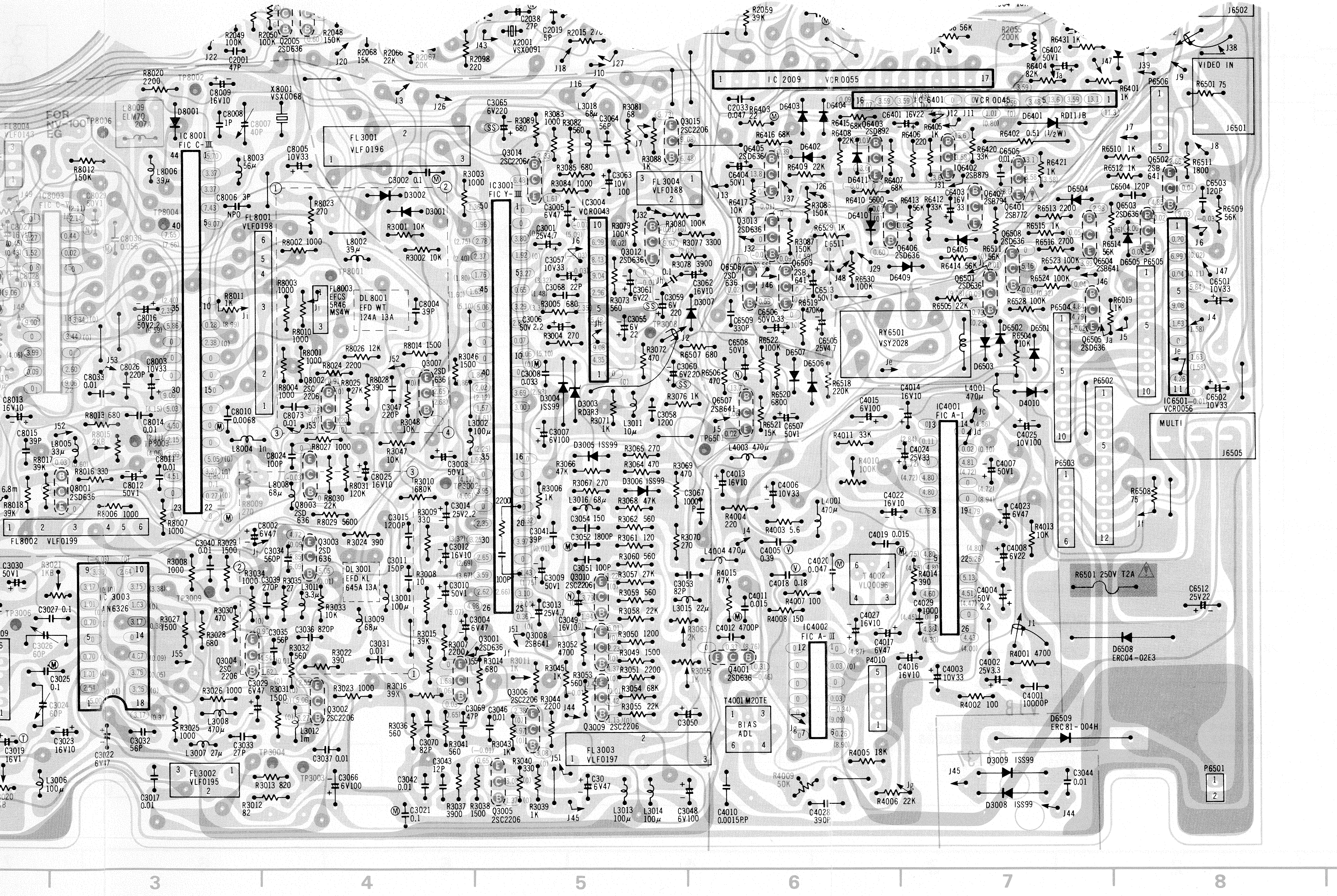
1	C.T.L. HEAD
2	GND

P 27

1	GND
2	GND


D
C
B
A
1
2
3
4
5
6
IC 8002 FIC C-Ⅳ
IC 8001 FIC C-Ⅲ
IC 3001 FIC Y-Ⅲ
IC 3004 VCR0043
IC 3002 VCR0042
IC 3003 AN6326
IC 2009 VCR 0055
IC 4002 FIC A-Ⅲ
RY 6401 VSY1008
RY 6501 VSY2028
FL 8002 VLF0199
FL 3001 VLF0196
FL 3004 VLF0188
FL 3002 VLF0195
FL 3003 VLF0197
FL 8001 VLF0198
FL8003 EFCS 5R46 MS4W
DL 8001 EFD WT 124A 13A
DL 3001 EFD KL 645A 13A
X8001 VSX0068
X2001 VSX0091
T4001 M20TE BIAS ADL
T4002 VLQ0096
FOR NV-100 EG
P6445
P6414
P8015
P8016
P8007
P6508
P3009
P4010

, LOADING MOTOR DRIVE AND JACK PANEL SECTION) P.C.B UNIT


IC 8001 FIC C-Ⅲ
IC 3001 FIC Y-Ⅲ
IC 3004 VCR0043
IC 2009 VCR0055
IC 6401 VCR 0045
IC 4001 FIC A-Ⅰ
IC 4002 FIC A-Ⅱ
IC 3003 AN6326
IC 6501 VCR0056
FL 3001 VLF0196
FL 3004 VLF0188
FL 8001 VLF0198
FL 8002 VLF0199
FL 3002 VLF0195
FL 3003 VLF0197
FL8003 EFCS 5R46 MS4W
DL 8001 EFD WT 124A 13A
DL 3001 EFD KL 645A 13A
RY6501 VSY2028
T 4002 VLQ0096
T4001 M20TE BIAS ADL
X8001 VSX0068
X2001 VSX0091
R6501 250V T2A
D6508 ERC04-02E3
D6509 ERC81-004H
VIDEO IN
MULTI
J6501
J6502
J6505
P6501
P6502
P6503
P6504
P6505
P6506
FOR NV-100 EG
3
4
5
6
7
8
9

3	CYL POWER	
4	9V	
5	———	
6	TORQUE CONTROL	
7	P G	
8	F G	

P6414

1	TORQUE CONTROL	
2	FULL TORQUE	
3	MOTOR ON	Ⓗ
4	9 V	
5	GND	
6	REF. V	
7	CURR. LIM	
8	E D	
9	E R	
10	CAP POWER	

P6445

1	TRACKING IN	
2	A - DUB	Ⓛ
3	TRACKING OUT	

P6413

1	LOAD MOTOR	⊕
2	LOAD MOTOR	⊖

P2012

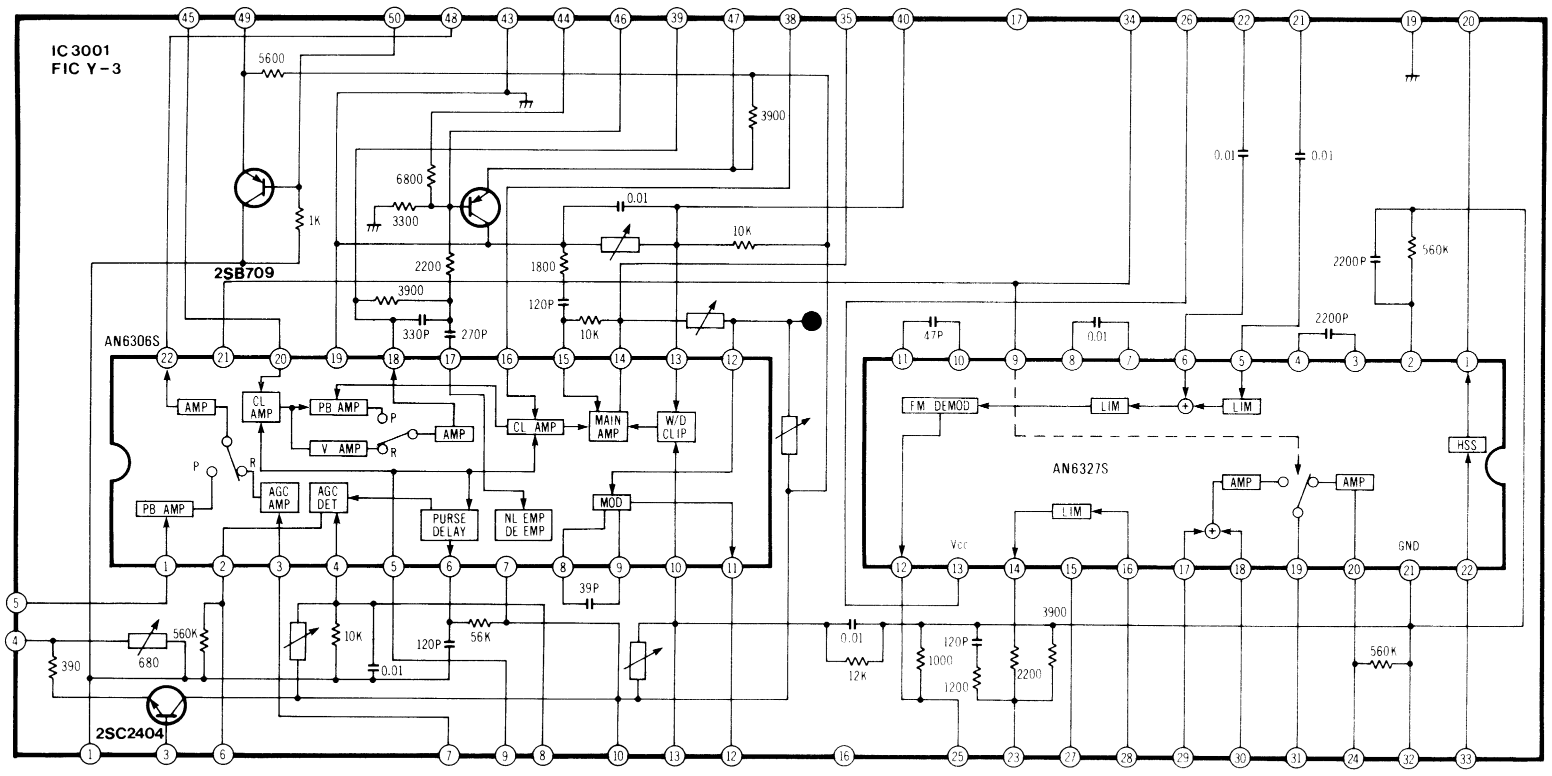
1	FG HEAD	
2	GND	
3	GND	

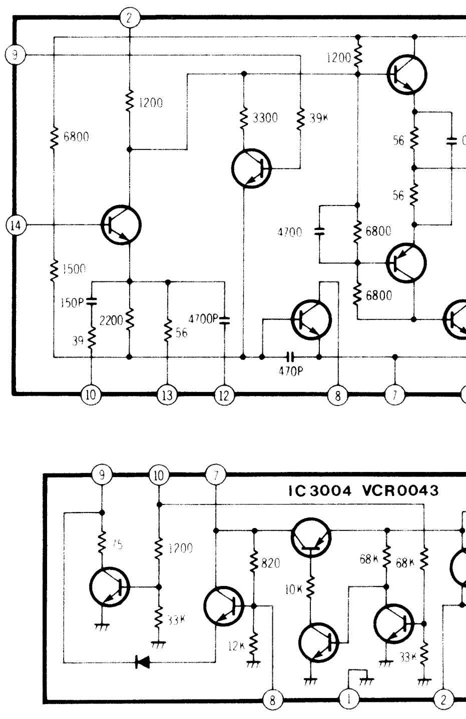
JC

1	SPEFD FIX	Ⓛ
2	6 H	Ⓗ
3	2^0	Ⓗ
4	2^2	Ⓗ
5	PAUSE RESET	Ⓗ
6	2^3	Ⓗ
7	2/4/6 SW	
8	A. DUB	Ⓛ

JD

1	UNLOADING	Ⓗ
2	LOADING	Ⓗ
3	STOP	Ⓗ
4	SLOW F. ADV	
5	SLOW TRACKING	
6	FWD	Ⓗ
7	REVERSE	Ⓗ
8	CYL LOCK	Ⓗ

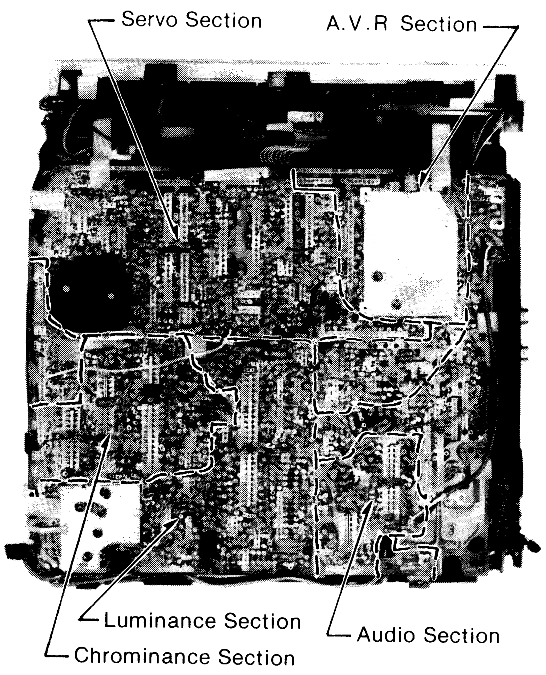

IC3001
FIC Y-3
2SB709
AN6306S
AN6327S
2SC2404
AMP
CL AMP
PB AMP
V AMP
MAIN AMP
W/D CLIP
AGC AMP
AGC DET
PB AMP
PURSE DELAY
NL EMP DE EMP
MOD
FM DEMOD
LIM
HSS
Vcc
GND

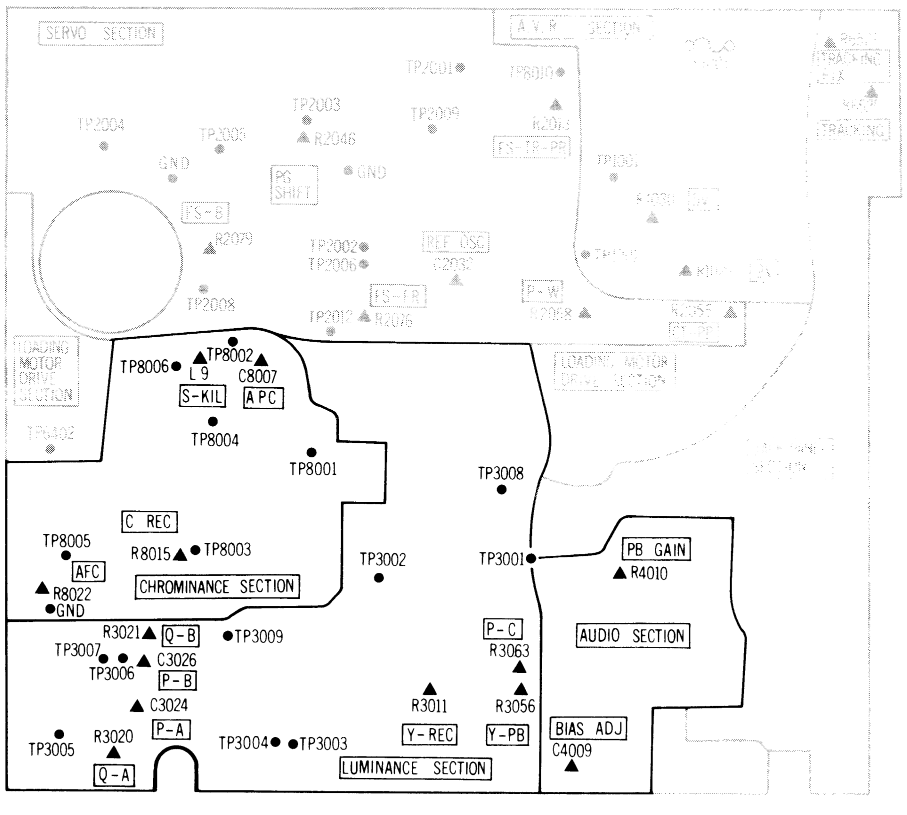

IC3004 VCR0043

MAIN P.C.B	
Audio Section	
Q4001	A-6
IC4001	B-7
IC4002	A-6

MAIN P.C.B	
Chrominance Section	
Q8001	B-3
Q8002	B-4
Q8003	B-4
Q8004	C-4
IC8001	C-3
IC8002	C-2
IC8003	C-3

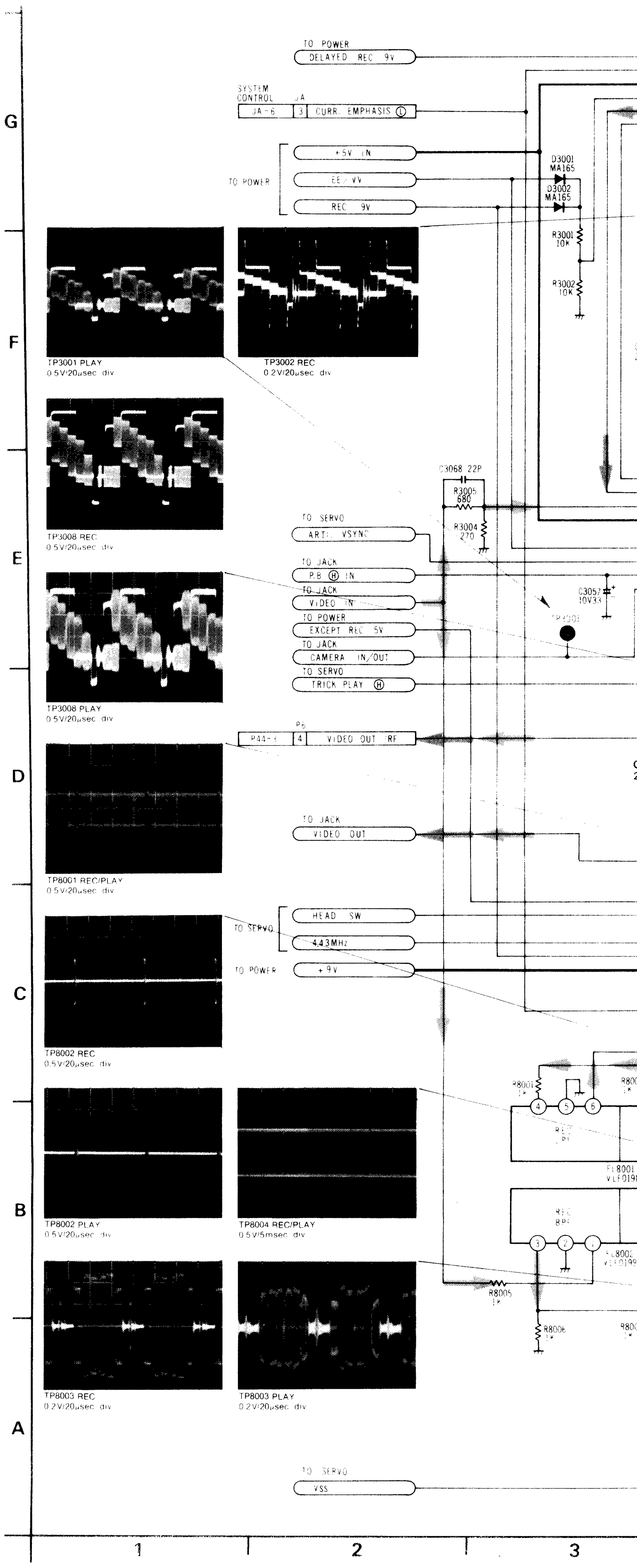
MAIN P.C.B	
Luminance Section	
Q3001	A-4
Q3002	A-4
Q3003	B-4
Q3004	A-3
Q3005	A-5
Q3006	A-5
Q3007	C-4
Q3008	A-5
Q3009	A-5
Q3010	A-5
Q3012	C-5
Q3013	D-6
Q3014	C-5
Q3015	D-5
IC3001	C-5
IC3002	A-2
IC3003	A-3
IC3004	C-5

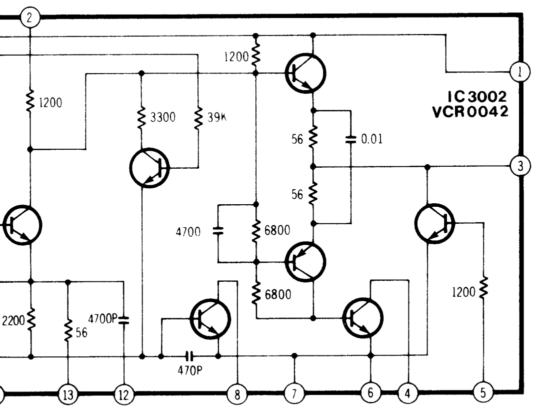

Servo Section
A.V.R Section
Luminance Section
Chrominance Section
Audio Section

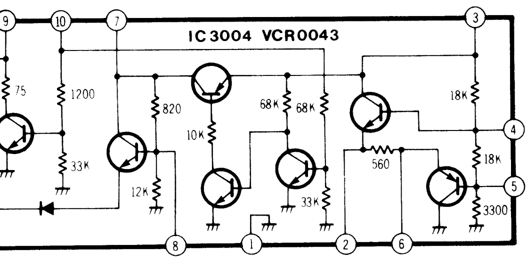

SERVO SECTION
A.V.R SECTION
LOADING MOTOR DRIVE SECTION
TP8006
TP8002
L 9
C8007
S-KIL
APC
TP8004
TP8001
TP3008
C REC
TP8005
R8015
TP8003
AFC
R8022
GND
CHROMINANCE SECTION
TP3002
TP3001
PB GAIN
R4010
R3021
Q-B
TP3009
TP3007
C3026
TP3006
P-B
C3024
P-C
R3063
AUDIO SECTION
R3011
R3056
TP3005
R3020
P-A
TP3004
TP3003
Y-REC
Y-PB
BIAS ADJ
C4009
Q-A
LUMINANCE SECTION

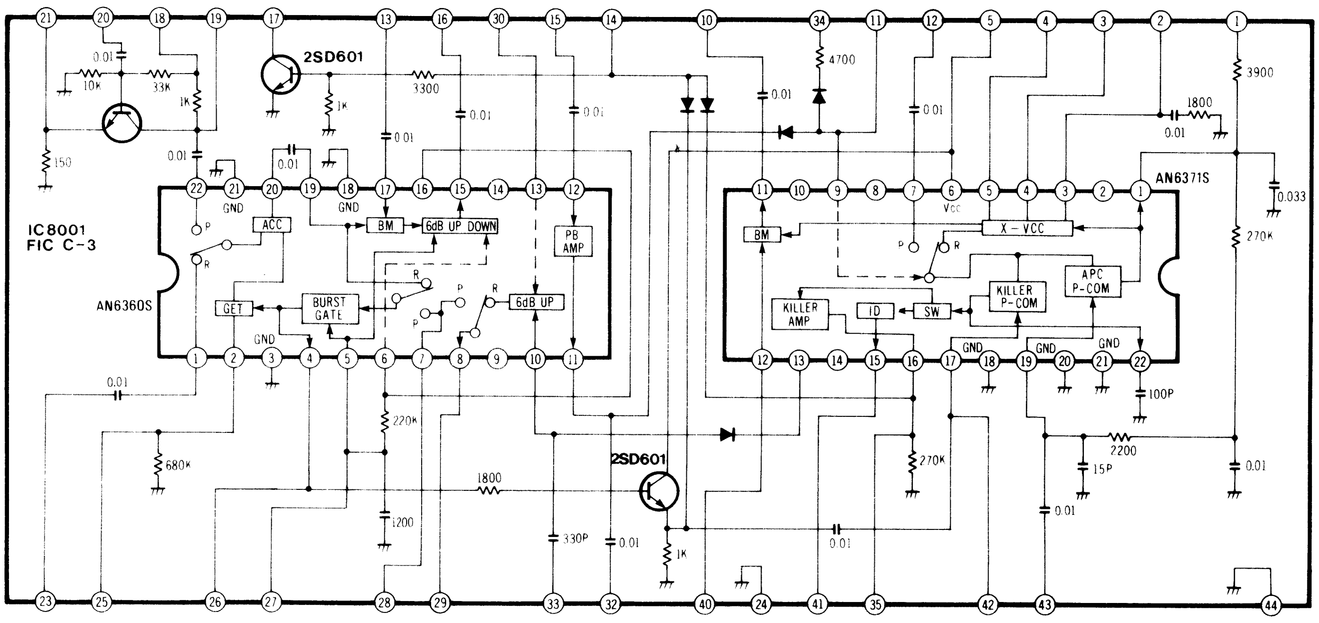
Luminance & Chrominance Schematic	
Q3001	F-9
Q3002	F-14
Q3003	E-13
Q3004	E-13
Q3005	E-9
Q3006	E-8
Q3007	D-9
Q3008	E-11
Q3009	E-11
Q3010	D-11
Q3012	D-5
Q3013	D-4
Q3014	D-4
Q3015	D-4
Q8001	B-10
Q8002	B-11
Q8003	B-12
Q8004	C-13
IC3001	F-5
IC3002	F-11
IC3003	F-13
IC3004	D-7
IC8001	B-6
IC8002	D-13
IC8003	B-13

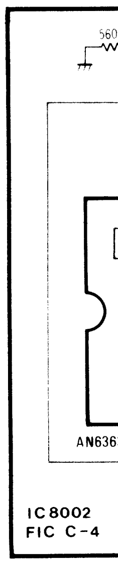
LUMINANCE & CHROMINANC


G
F
E
D
C
B
A
1
2
3
TO POWER
DELAYED REC 9V
SYSTEM CONTROL
CURR. EMPHASIS
+5V IN
EE/VV
REC 9V
TO SERVO
ARTI VSYNC
TO JACK
P.B IN
VIDEO IN
EXCEPT REC 5V
CAMERA IN/OUT
TRICK PLAY
VIDEO OUT RF
VIDEO OUT
HEAD SW
4.43MHz
+9V
VSS
TP3001 PLAY 0.5V/20μsec div
TP3002 REC 0.2V/20μsec div
TP3008 REC 0.5V/20μsec div
TP3008 PLAY 0.5V/20μsec div
TP8001 REC/PLAY 0.5V/20μsec div
TP8002 REC 0.5V/20μsec div
TP8002 PLAY 0.5V/20μsec div
TP8004 REC/PLAY 0.5V/5msec div
TP8003 REC 0.2V/20μsec div
TP8003 PLAY 0.2V/20μsec div


IC3002
VCR0042

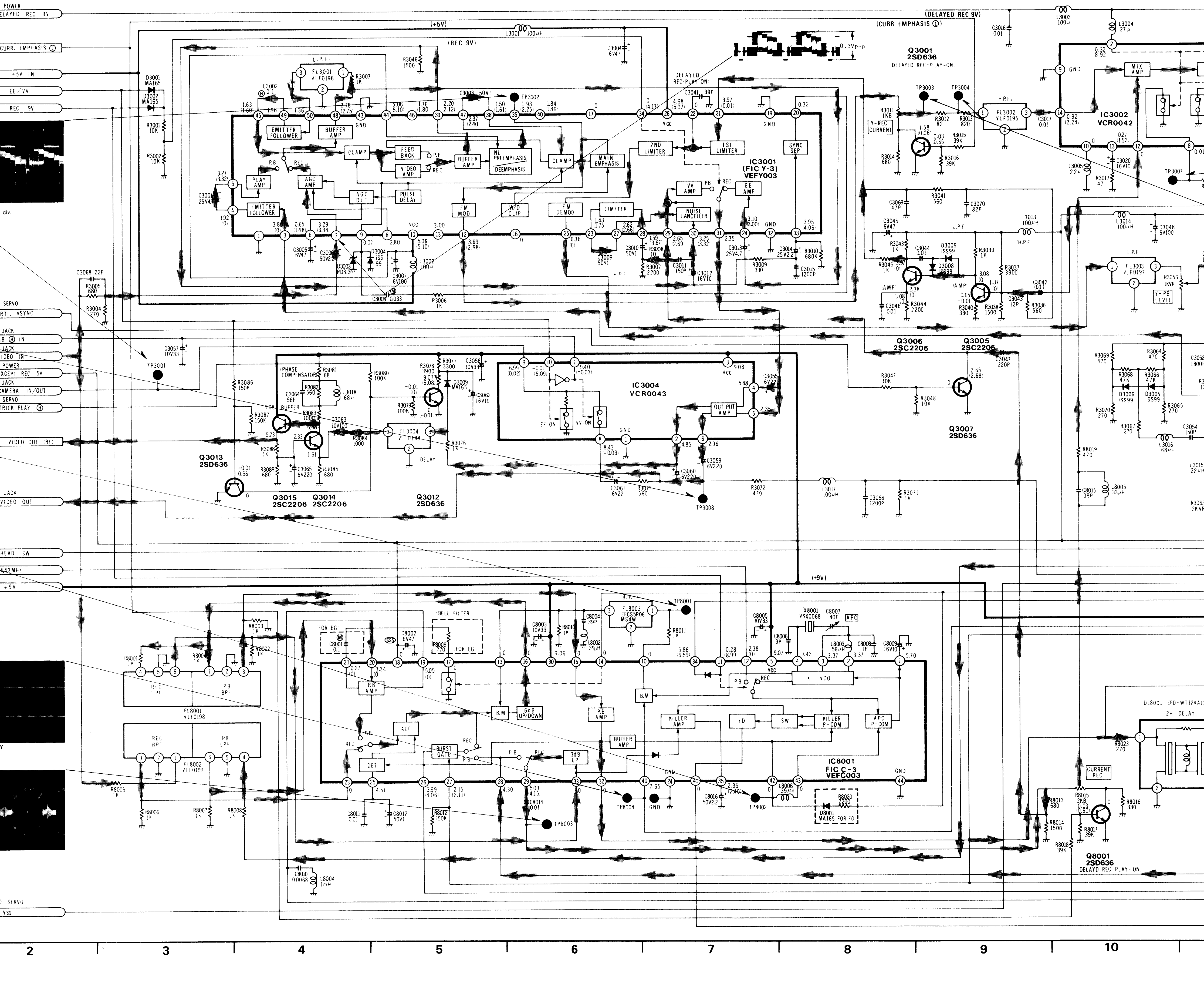

IC3004 VCR0043

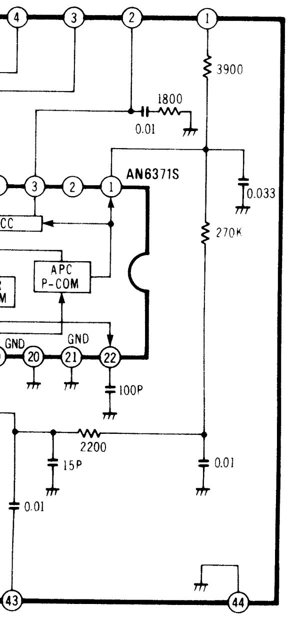

IC8001
FIC C-3
AN6360S
AN6371S
2SD601

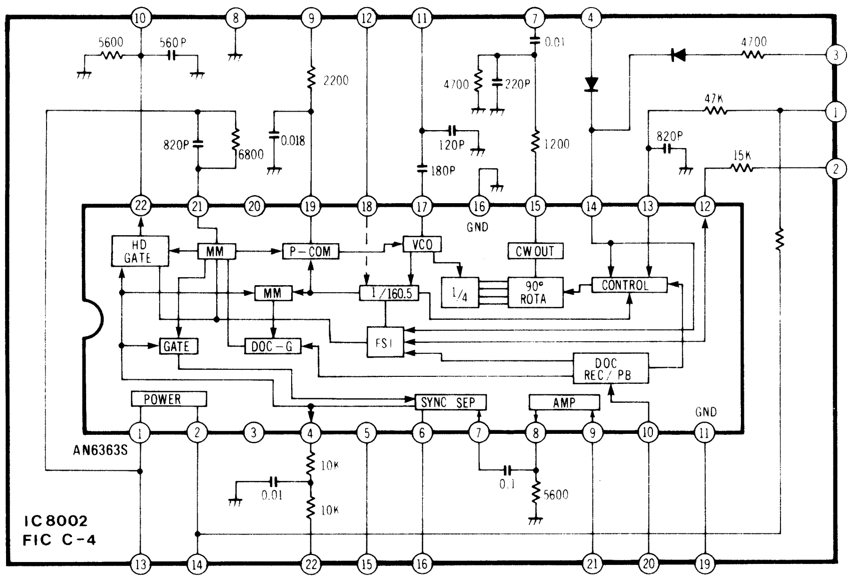

IC8002
FIC C-4

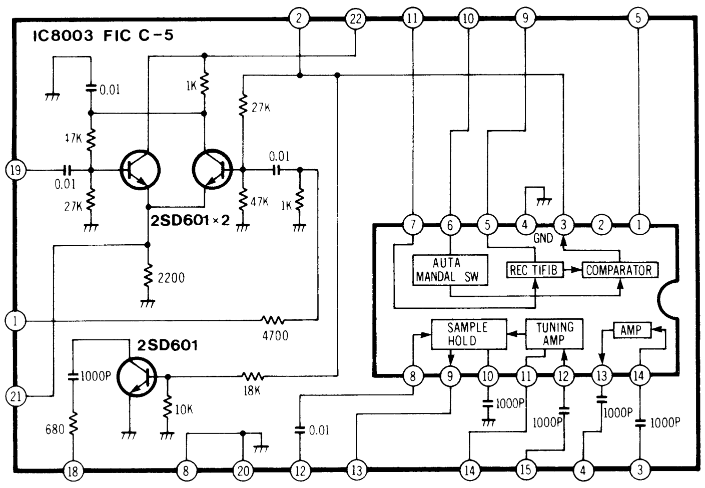
THE MEASUREM
THIS DIAGRAM I
THE MEASUREM
DIAGRAM IS PLA

& CHROMINANCE SECTION SCHEMATIC DIAGRAM


IC3001
(FIC Y-3)
VEFY003
IC3004
VCR0043
IC8001
FIC C-3
VEFC003
IC3002
VCR0042
Q3001
2SD636
DELAYED REC-PLAY-ON
Q3006
2SC2206
Q3005
2SC2206
Q3007
2SD636
Q3013
2SD636
Q3015
2SC2206
Q3014
2SC2206
Q3012
2SD636
Q8001
2SD636
DELAYED REC PLAY-ON
(+5V)
(REC 9V)
(DELAYED REC 9V)
(CURR EMPHASIS ①)
(+9V)
POWER
DELAYED REC 9V
CURR. EMPHASIS ①
+5V IN
EE/VV
REC 9V
SERVO
VERTI. VSYNC
JACK
VIDEO IN
POWER
EXCEPT REC 5V
CAMERA IN/OUT
TRICK PLAY Ⓗ
VIDEO OUT (RF)
VIDEO OUT
HEAD SW
4.43MHz
+9V
VSS
DL8001 EFD-WT124A
2H DELAY
2
3
4
5
6
7
8
9
10

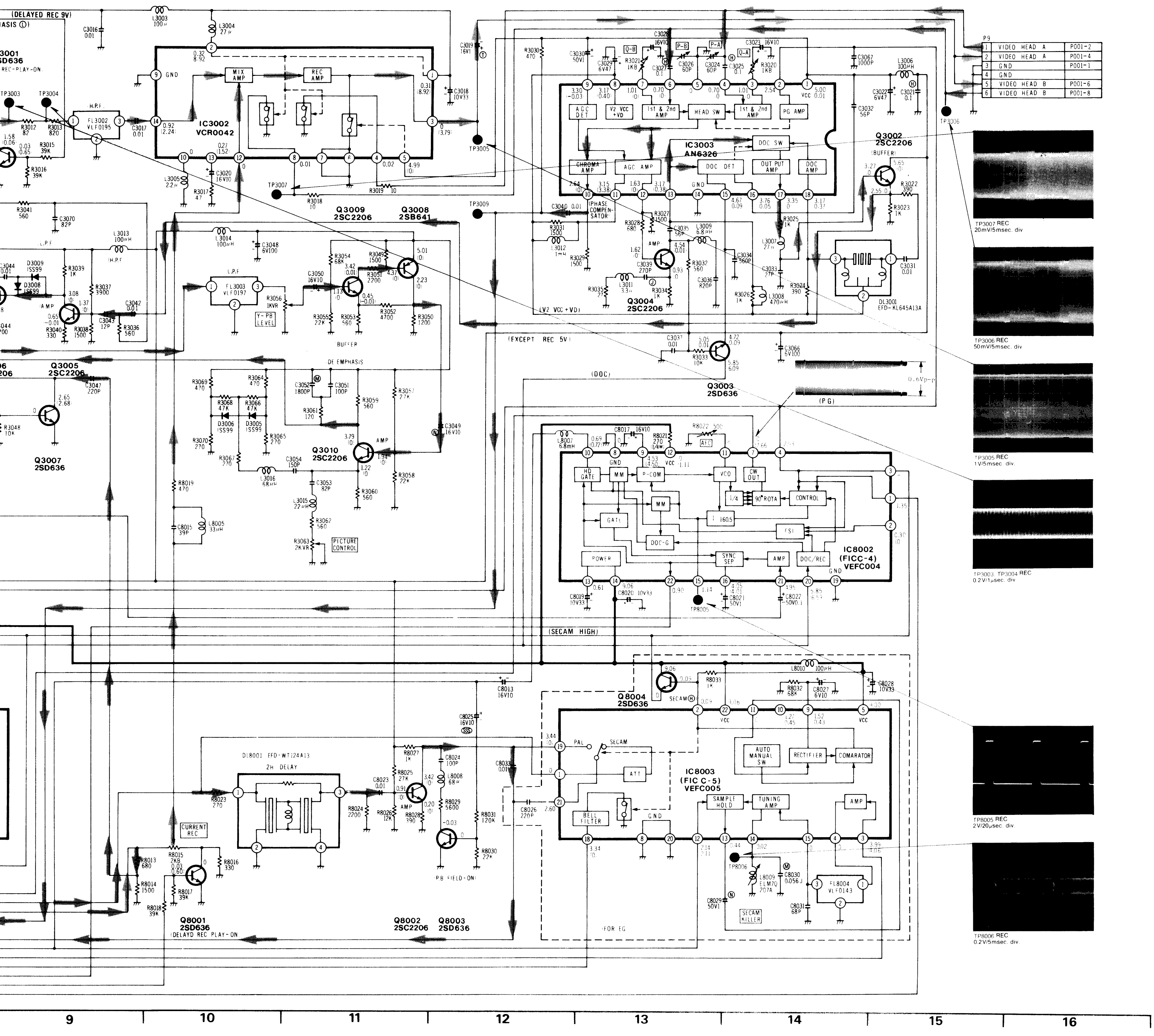

AN6371S
APC
P-COM
GND
3900
1800
0.01
0.033
270K
2200
15P
100P
0.01
43
44


IC8002
FIC C-4
AN6363S
HD GATE
MM
P-COM
VCO
CW OUT
1/160.5
1/4
90° ROTA
CONTROL
GATE
DOC-G
FSI
DOC REC/PB
POWER
SYNC SEP
AMP
GND
5600
560P
820P
6800
0.018
2200
4700
220P
120P
180P
1200
0.01
820P
47K
15K
4700
10K
5600

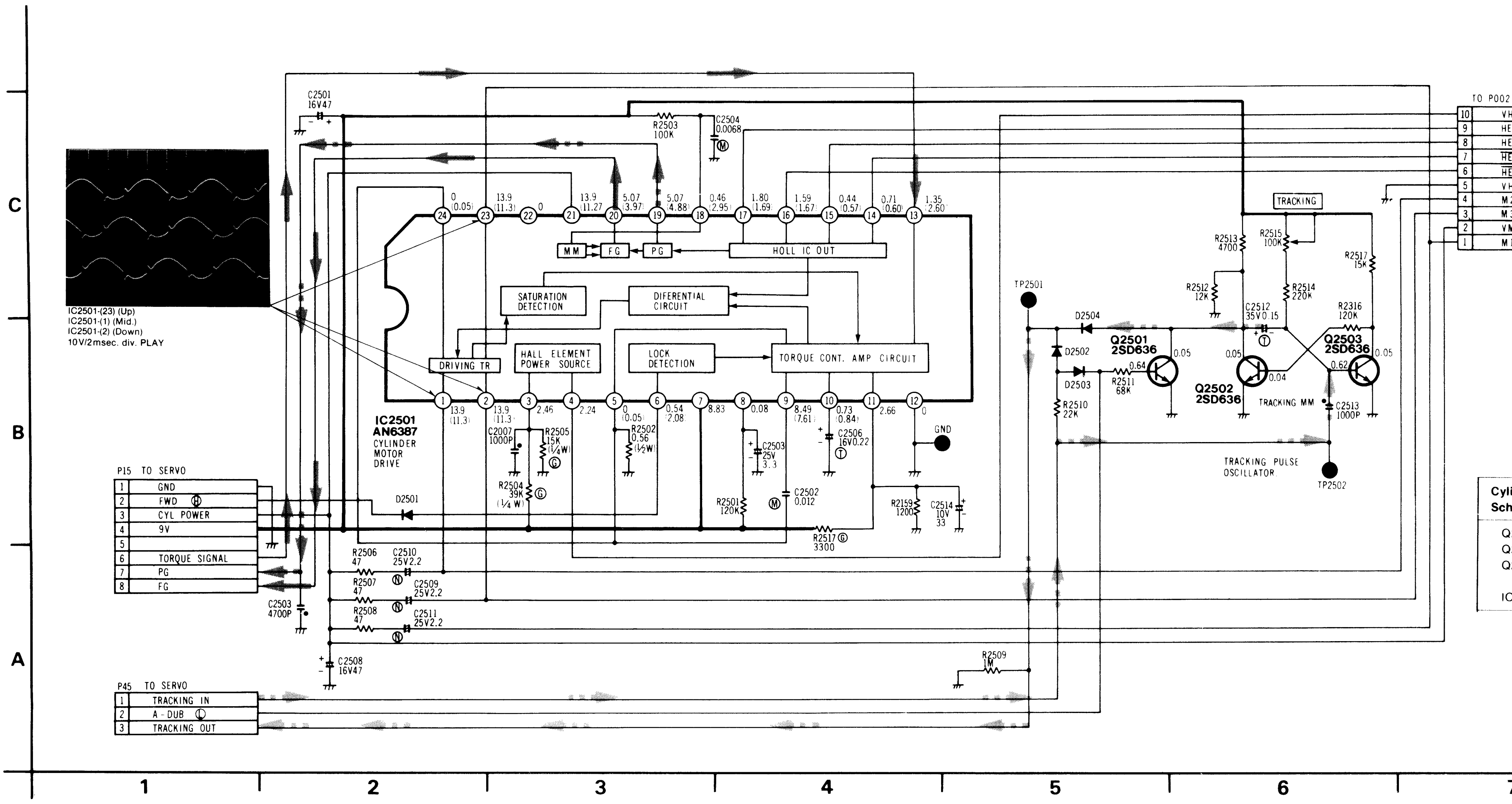

IC8003 FIC C-5
2SD601×2
2SD601
AUTA MANDAL SW
REC TIFIB
COMPARATOR
SAMPLE HOLD
TUNING AMP
AMP
GND
0.01
1K
27K
47K
2200
4700
1000P
18K
10K
680

THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRAKETS (   ) ON THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR SIGNAL.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRAKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

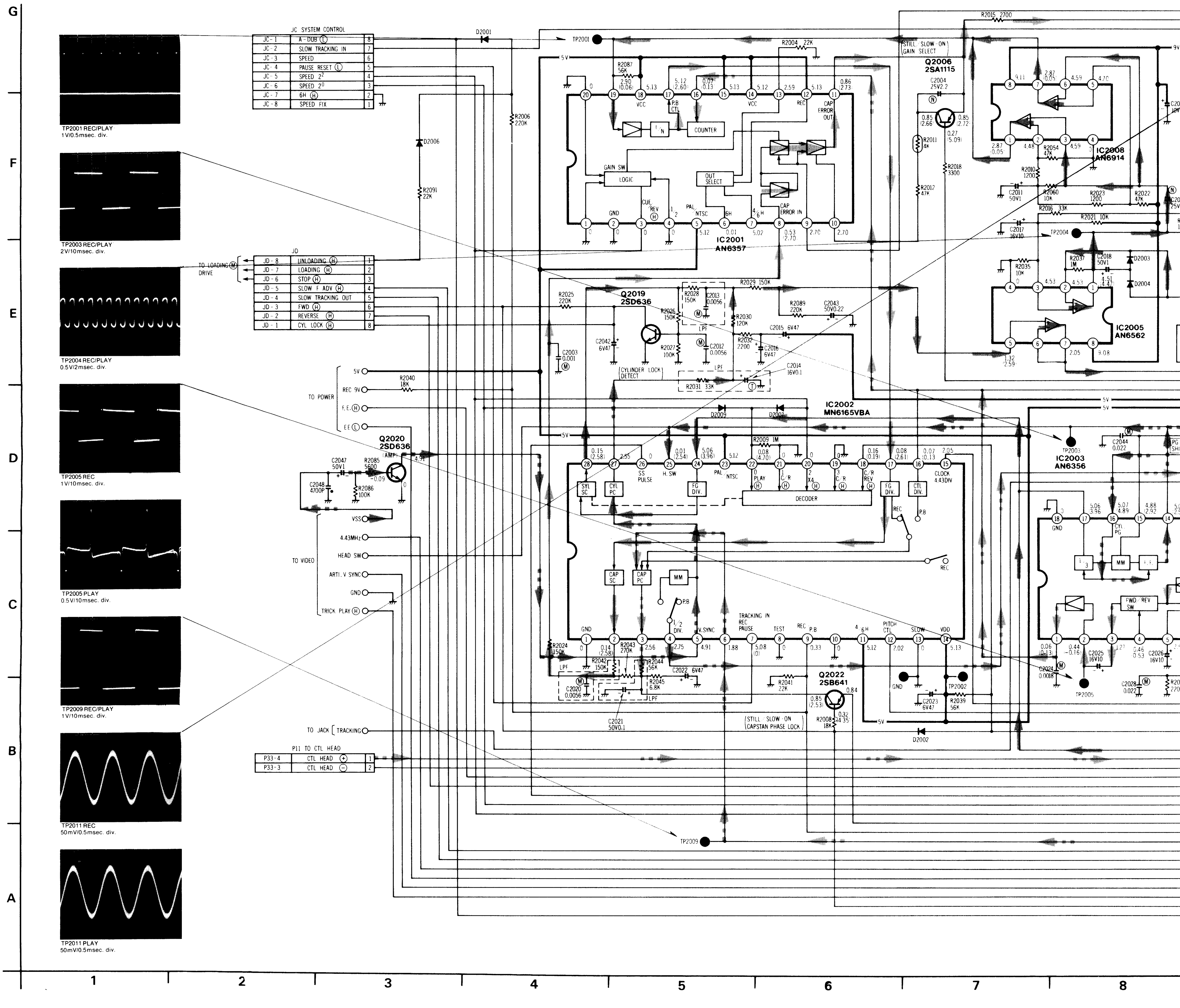
MAIN SIGNAL PATH IN REC MODE.
MAIN SIGNAL PATH IN PLAYBACK MODE.


(DELAYED REC 9V)
IC3002
VCR0042
MIX AMP
REC AMP
H.P.F
FL3002 VLF0195
TP3003
TP3004
TP3005
TP3006
TP3007
TP3009
Q3009 2SC2206
Q3008 2SB641
L.P.F
FL3003 VLF0197
Y-PB LEVEL
BUFFER
DE EMPHASIS
Q3010 2SC2206
PICTURE CONTROL
Q3005 2SC2206
Q3007 2SD636
IC3003 AN6326
AGC DET
V2 VCC +VD
1st & 2nd AMP
HEAD SW
PG AMP
DOC SW
CHROMA AMP
AGC AMP
DOC DET
OUT PUT AMP
DOC AMP
PHASE COMPEN-SATOR
Q3004 2SC2206
Q3003 2SD636
Q3002 2SC2206
(BUFFER)
DL3001 EFD-KL645A13A
P9
1 VIDEO HEAD A P001-2
2 VIDEO HEAD A P001-4
3 GND P001-1
4 GND
5 VIDEO HEAD B P001-6
6 VIDEO HEAD B P001-8
(LV2 VCC+VD)
(EXCEPT REC 5V)
(DOC)
(PG)
0.6Vp-p
IC8002 (FICC-4) VEFC004
HD GATE
MM
P-COM
VCO
CW OUT
1/4
90°ROTA
CONTROL
GATE
1/160.5
FSI
DOC-G
POWER
SYNC SEP
AMP
DOC/REC
GND
AFC
TP8005
(SECAM HIGH)
Q8004 2SD636
SECAM
IC8003 (FIC C-5) VEFC005
PAL
ATT
AUTO MANUAL SW
RECTIFIER
COMARATOR
BELL FILTER
SAMPLE HOLD
TUNING AMP
AMP
GND
TP8006
SECAM KILLER
FL8004 VLF0143
DL8001 EFD-WT124A13
2H DELAY
CURRENT REC
Q8001 2SD636
(DELAYD REC PLAY-ON)
Q8002 2SC2206
Q8003 2SD636
PB FIELD-ON
FOR EG
TP3007 REC 20mV/5msec. div
TP3006 REC 50mV/5msec. div
TP3005 REC 1V/5msec. div
TP3003, TP3004 REC 0.2V/1μsec. div
TP8005 REC 2V/20μsec. div
TP8006 REC 0.2V/5msec. div
9
10
11
12
13
14
15
16

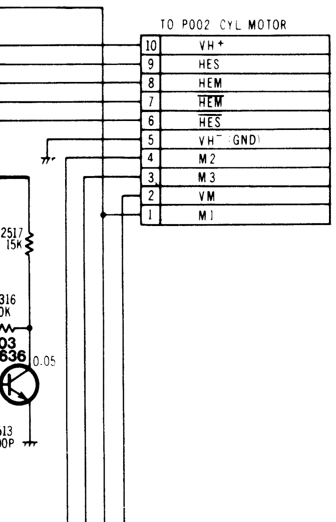
CYLINDER MOTOR DRIVE SCHEMATIC DIAGRAM


IC2501-(23) (Up)
IC2501-(1) (Mid.)
IC2501-(2) (Down)
10V/2msec. div. PLAY
IC2501
AN6387
CYLINDER
MOTOR
DRIVE
SATURATION DETECTION
DIFERENTIAL CIRCUIT
DRIVING TR
HALL ELEMENT POWER SOURCE
LOCK DETECTION
TORQUE CONT. AMP CIRCUIT
MM
FG
PG
HOLL IC OUT
P15 TO SERVO
GND
FWD
CYL POWER
9V
TORQUE SIGNAL
PG
FG
P45 TO SERVO
TRACKING IN
A-DUB
TRACKING OUT
TP2501
TP2502
Q2501
2SD636
Q2502
2SD636
Q2503
2SD636
TRACKING
TRACKING MM
TRACKING PULSE OSCILLATOR
TO P002
GND
1
2
3
4
5
6
A
B
C

SERVO SECTION SCHEMATIC DIAGRAM

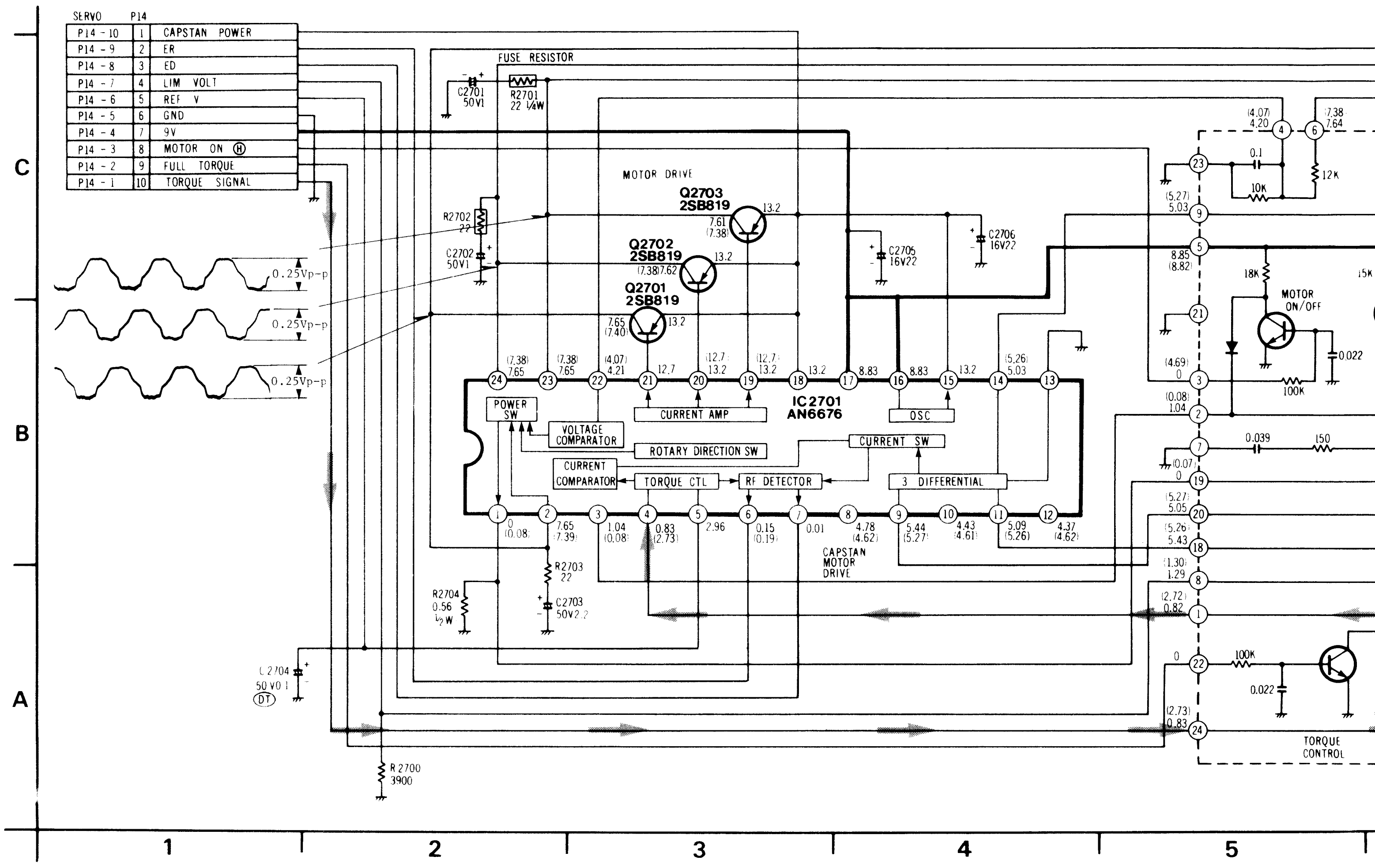

TP2001 REC/PLAY
1V/0.5msec. div.
TP2003 REC/PLAY
2V/10msec. div.
TP2004 REC/PLAY
0.5V/2msec. div.
TP2005 REC
1V/10msec. div.
TP2005 PLAY
0.5V/10msec. div.
TP2009 REC/PLAY
1V/10msec. div.
TP2011 REC
50mV/0.5msec. div.
TP2011 PLAY
50mV/0.5msec. div.
JC SYSTEM CONTROL
A-DUB
SLOW TRACKING IN
SPEED
PAUSE RESET
SPEED 2
SPEED 2
6H
SPEED FIX
TO LOADING DRIVE
UNLOADING
LOADING
STOP
SLOW F ADV
SLOW TRACKING OUT
FWD
REVERSE
CYL LOCK
TO POWER
5V
REC 9V
F.E.
E.E.
TO VIDEO
VSS
4.43MHz
HEAD SW
ARTI. V SYNC
GND
TRICK PLAY
TO JACK
TRACKING
P11 TO CTL HEAD
CTL HEAD
CTL HEAD
IC2001
AN6357
IC2002
MN6165VBA
IC2003
AN6356
IC2005
AN6562
IC2008
AN6914
Q2006
2SA1115
Q2019
2SD636
Q2020
2SD636
Q2022
2SB641
CYLINDER LOCK DETECT
LPF
DECODER
COUNTER
LOGIC
OUT SELECT
GAIN SW
CAP ERROR OUT
CAP ERROR IN
STILL SLOW ON GAIN SELECT
STILL SLOW ON CAPSTAN PHASE LOCK
TRACKING IN REC PAUSE
TP2001
TP2002
TP2003
TP2004
TP2005
TP2009
1
2
3
4
5
6
7
8
A
B
C
D
E
F
G

CAPSTAN MOTOR DRIVE SCHEMATIC DIAGRAM

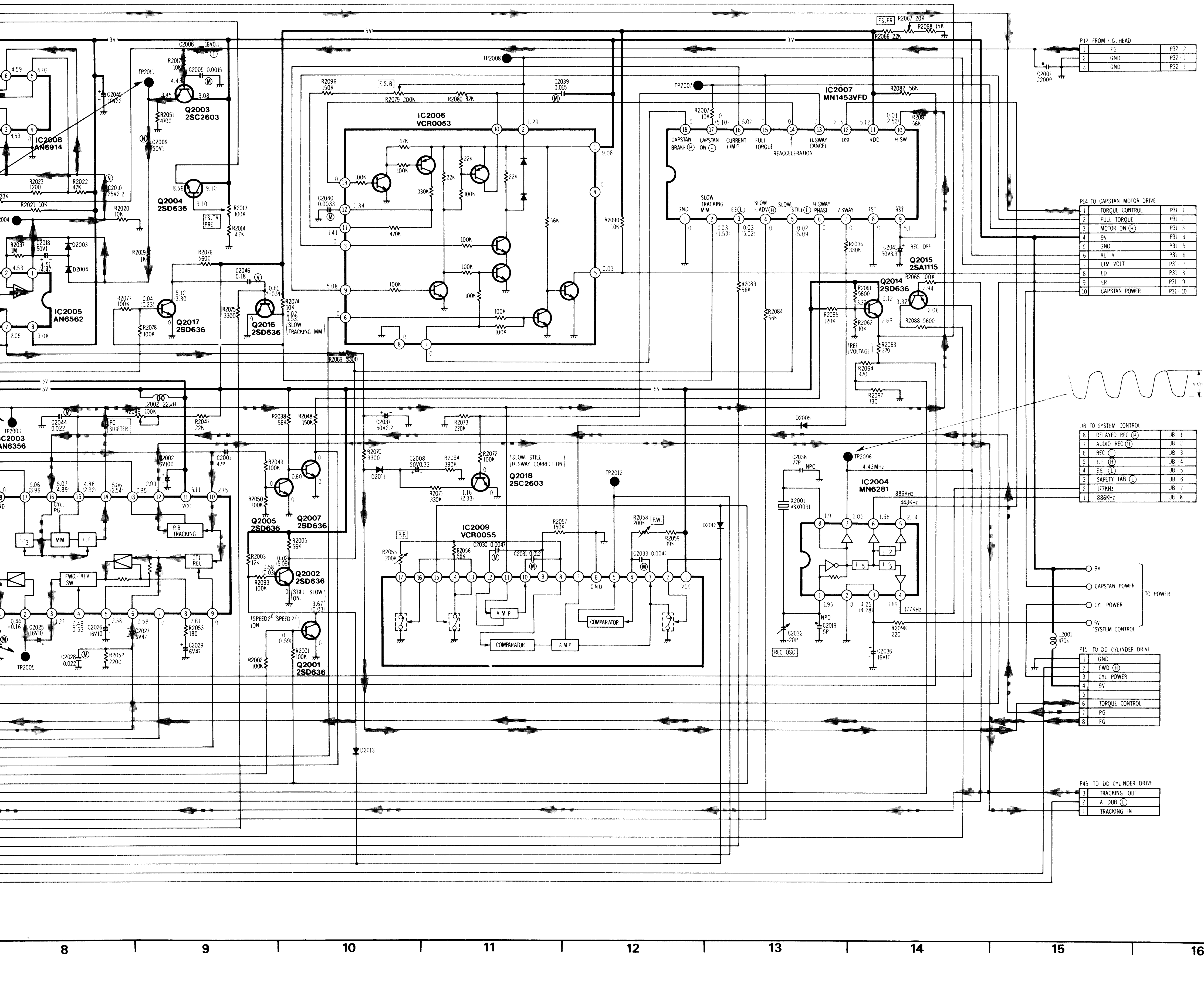

TO P002 CYL MOTOR
10 VH+
9 HES
8 HEM
7 HEM
6 HES
5 VH⁻ (GND)
4 M2
3 M3
2 VM
1 M1

Cylinder Motor Drive Schematic

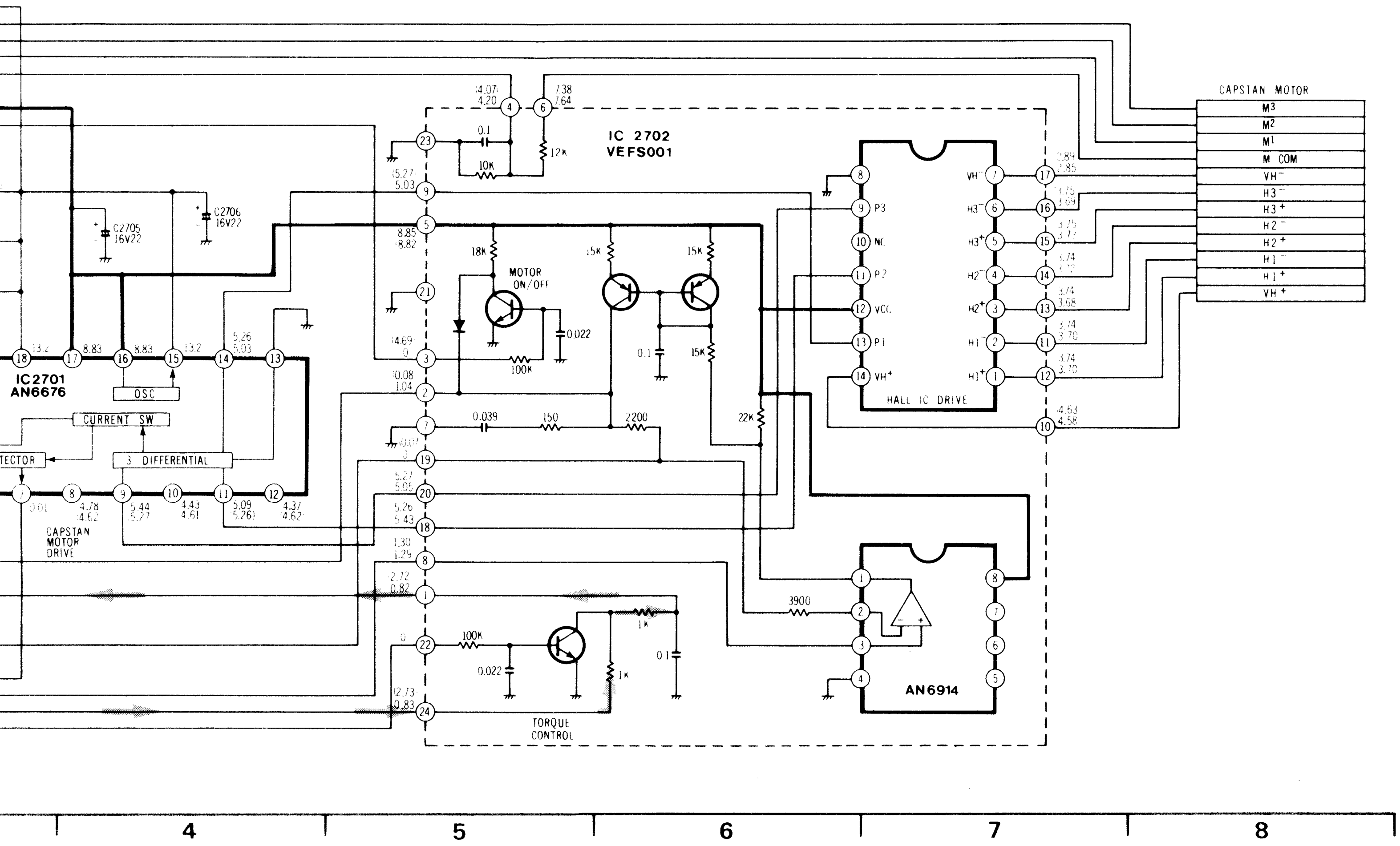
Q2501	B-5
Q2502	B-6
Q2503	B-6
IC2501	B-3


SERVO P14
P14-10 1 CAPSTAN POWER
P14-9 2 ER
P14-8 3 ED
P14-7 4 LIM VOLT
P14-6 5 REF V
P14-5 6 GND
P14-4 7 9V
P14-3 8 MOTOR ON Ⓗ
P14-2 9 FULL TORQUE
P14-1 10 TORQUE SIGNAL
FUSE RESISTOR
R2701 22 1/4W
C2701 50V1
MOTOR DRIVE
Q2703 2SB819
Q2702 2SB819
Q2701 2SB819
0.25Vp-p
IC2701 AN6676
POWER SW
VOLTAGE COMPARATOR
CURRENT AMP
ROTARY DIRECTION SW
CURRENT COMPARATOR
TORQUE CTL
RF DETECTOR
CURRENT SW
OSC
3 DIFFERENTIAL
CAPSTAN MOTOR DRIVE
MOTOR ON/OFF
TORQUE CONTROL
C
B
A
1
2
3
4
5

THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRAKETS (
THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR SIGNAL.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRAKETS OI
DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.


IC2008 AN6914
Q2003 2SC2603
Q2004 2SD636
IC2005 AN6562
Q2017 2SD636
Q2016 2SD636
IC2006 VCR0053
IC2007 MN1453VFD
Q2014 2SD636
Q2015 2SA1115
IC2003 AN6356
Q2005 2SD636
Q2007 2SD636
Q2002 2SD636
Q2001 2SD636
Q2018 2SC2603
IC2009 VCR0055
IC2004 MN6281
P12 FROM F.G. HEAD
P14 TO CAPSTAN MOTOR DRIVE
J8 TO SYSTEM CONTROL
P15 TO DD CYLINDER DRIVE
P45 TO DD CYLINDER DRIVE
TO POWER
9V
CAPSTAN POWER
CYL POWER
5V SYSTEM CONTROL
7
8
9
10
11
12
13
14
15
16

IC DIAGRAM

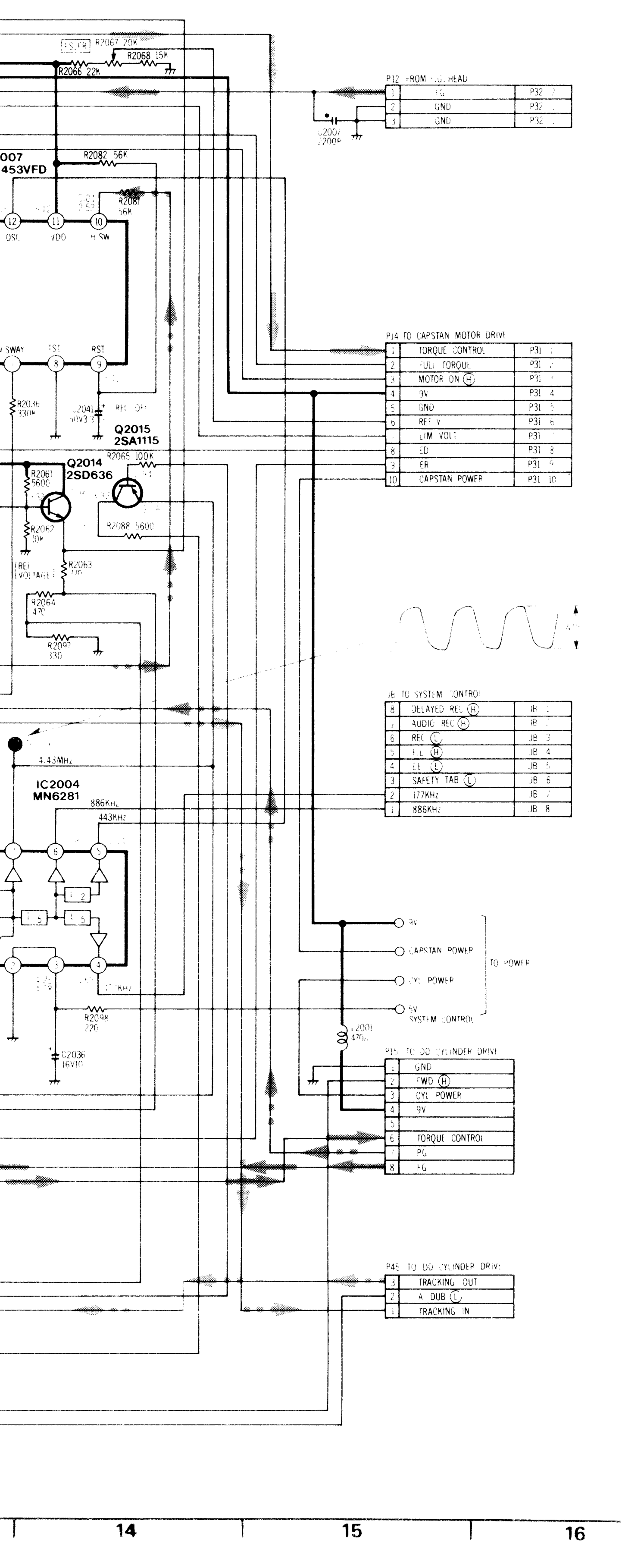


CAPSTAN MOTOR
M3
M2
M1
M COM
VH-
H3-
H3+
H2-
H2+
H1-
H1+
VH+
IC 2702
VEFS001
HALL IC DRIVE
MOTOR ON/OFF
IC2701
AN6676
OSC
CURRENT SW
3 DIFFERENTIAL
CAPSTAN MOTOR DRIVE
AN6914
TORQUE CONTROL
4
5
6
7
8

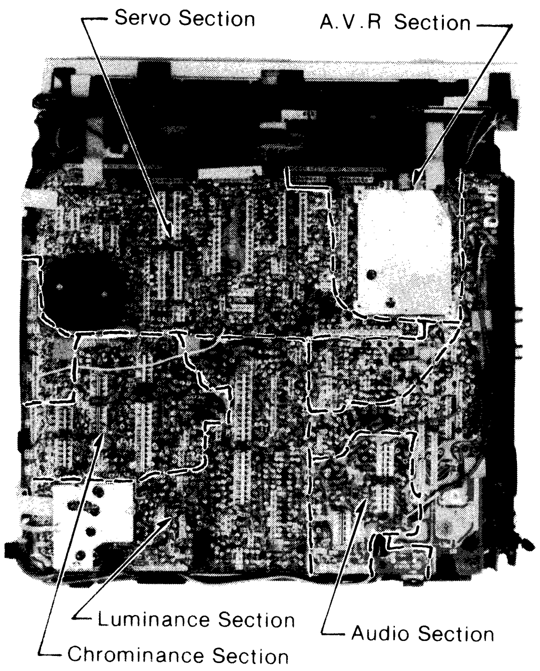
Capstan Motor Drive Schematic	
Q2701	B-3
Q2702	C-3
Q2703	C-3
IC2701	B-3
IC2702	B-6

UREMENT MODE OF THE DC VOLTAGE IN THE BRAKETS ( ) ON
RAM IS RECORD MODE WITH PAL COLOUR SIGNAL.
UREMENT MODE OF THE DC VOLTAGE OUT OF THE BRAKETS ON THIS
IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

← SPEED LOOP REC MODE.
← • • PHASE LOOP REC MODE.
← SPEED LOOP PLAY MODE.
← • • PHASE LOOP PLAY MODE.



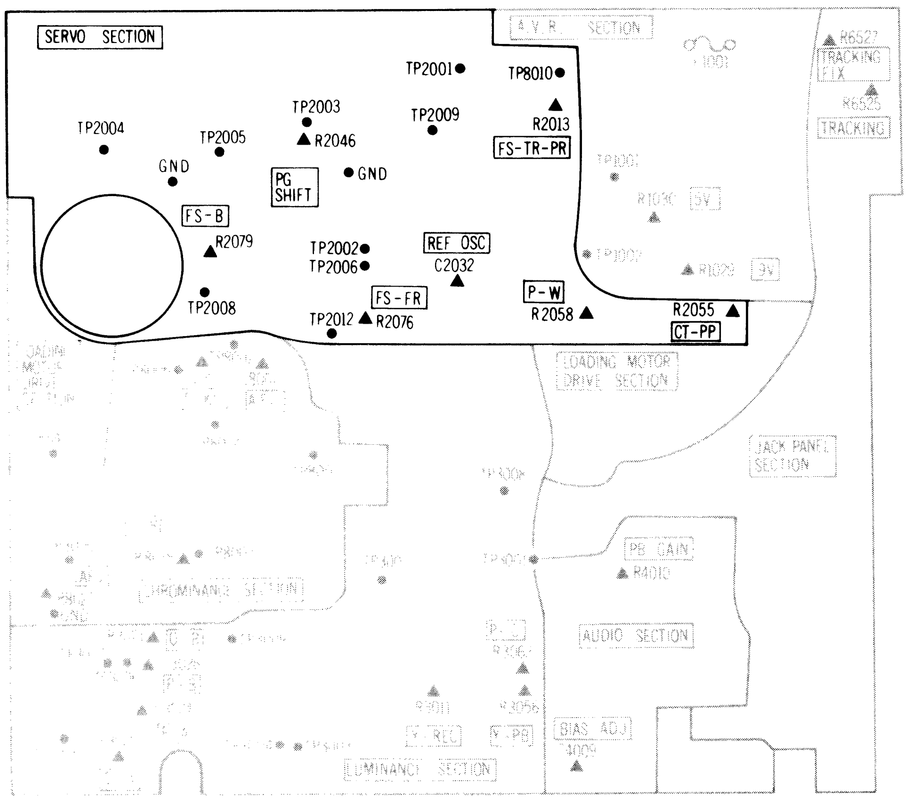
P12 FROM ... HEAD
FG
GND
GND
007
453VFD
P14 TO CAPSTAN MOTOR DRIVE
TORQUE CONTROL
FULL TORQUE
MOTOR ON (H)
9V
GND
REF V
LIM VOLT
FD
FR
CAPSTAN POWER
Q2015
2SA1115
Q2014
2SD636
J8 TO SYSTEM CONTROL
DELAYED REC (H)
AUDIO REC (H)
REC (L)
E-E (H)
E-E (L)
SAFETY TAB (L)
177KHz
886KHz
IC2004
MN6281
9V
CAPSTAN POWER
CYL POWER
9V
SYSTEM CONTROL
TO POWER
P15 TO DD CYLINDER DRIVE
GND
FWD (H)
CYL POWER
9V
TORQUE CONTROL
PG
FG
P45 TO DD CYLINDER DRIVE
TRACKING OUT
A DUB (L)
TRACKING IN
14
15
16



Servo Section
A.V.R Section
Luminance Section
Chrominance Section
Audio Section

MAIN P.C.B	
Servo Section	
Q2001	E-5
Q2002	E-5
Q2003	E-2
Q2004	F-6
Q2005	D-4
Q2006	E-6
Q2007	D-4
Q2014	F-5
Q2015	E-4
Q2016	E-4
Q2017	E-4
Q2018	F-2
Q2019	F-4
Q2020	E-5
Q2022	E-5
IC2001	F-5
IC2002	F-4
IC2003	F-3
IC2004	E-5
IC2005	F-3
IC2006	E-3
IC2007	E-4
IC2008	F-2
IC2009	D-6

Servo Schematic	
Q2001	C-10
Q2002	C-10
Q2003	F-9
Q2004	E-9
Q2005	C-9
Q2006	F-7
Q2007	D-10
Q2014	E-14
Q2015	E-14
Q2016	D-9
Q2017	D-9
Q2018	C-11
Q2019	D-5
Q2020	D-3
Q2022	B-6
IC2001	F-5
IC2002	C-6
IC2003	C-8
IC2004	C-13
IC2005	D-8
IC2006	E-11
IC2007	E-13
IC2008	F-8
IC2009	C-11



SERVO SECTION
A.V.R SECTION
TP2001
TP8010
TP2003
TP2009
TP2004
TP2005
R2046
R2013
FS-TR-PR
GND
PG SHIFT
GND
FS-B
R2079
TP2002
TP2006
REF OSC
C2032
FS-FR
P-W
TP2008
TP2012
R2076
R2058
R2055
CT-PP
TRACKING FIX
TRACKING
9V
9V
LOADING MOTOR DRIVE SECTION
JACK PANEL SECTION
PB GAIN
R4010
CHROMINANCE SECTION
AUDIO SECTION
BIAS ADJ
V-REC
V-PB
LUMINANCE SECTION

MAIN (A.V.R. AND SERVO SECTION) P.C.B. UNIT

P6501

1	GND
2	12V IN

P6502

1	CLOCK Ⅱ
2	SAFETY TAB
3	CH LOCK
4	GND
5	AUDIO IN
6	SERIAL CODE
7	GND
8	GND
9	VIDEO IN
10	12 V
11	HEATER 20V
12	GND

P6503

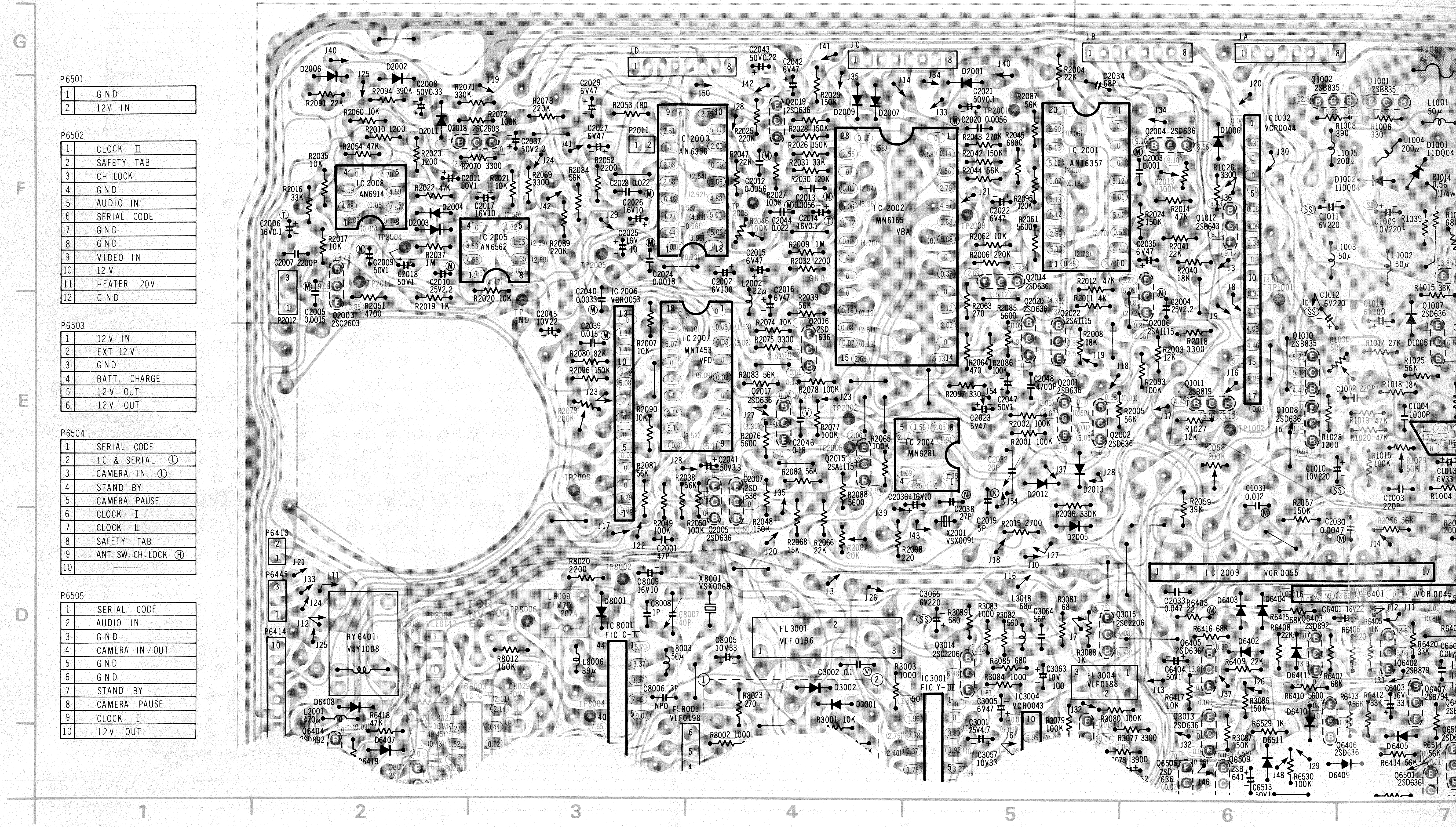
1	12V IN
2	EXT 12V
3	GND
4	BATT. CHARGE
5	12V OUT
6	12V OUT

P6504

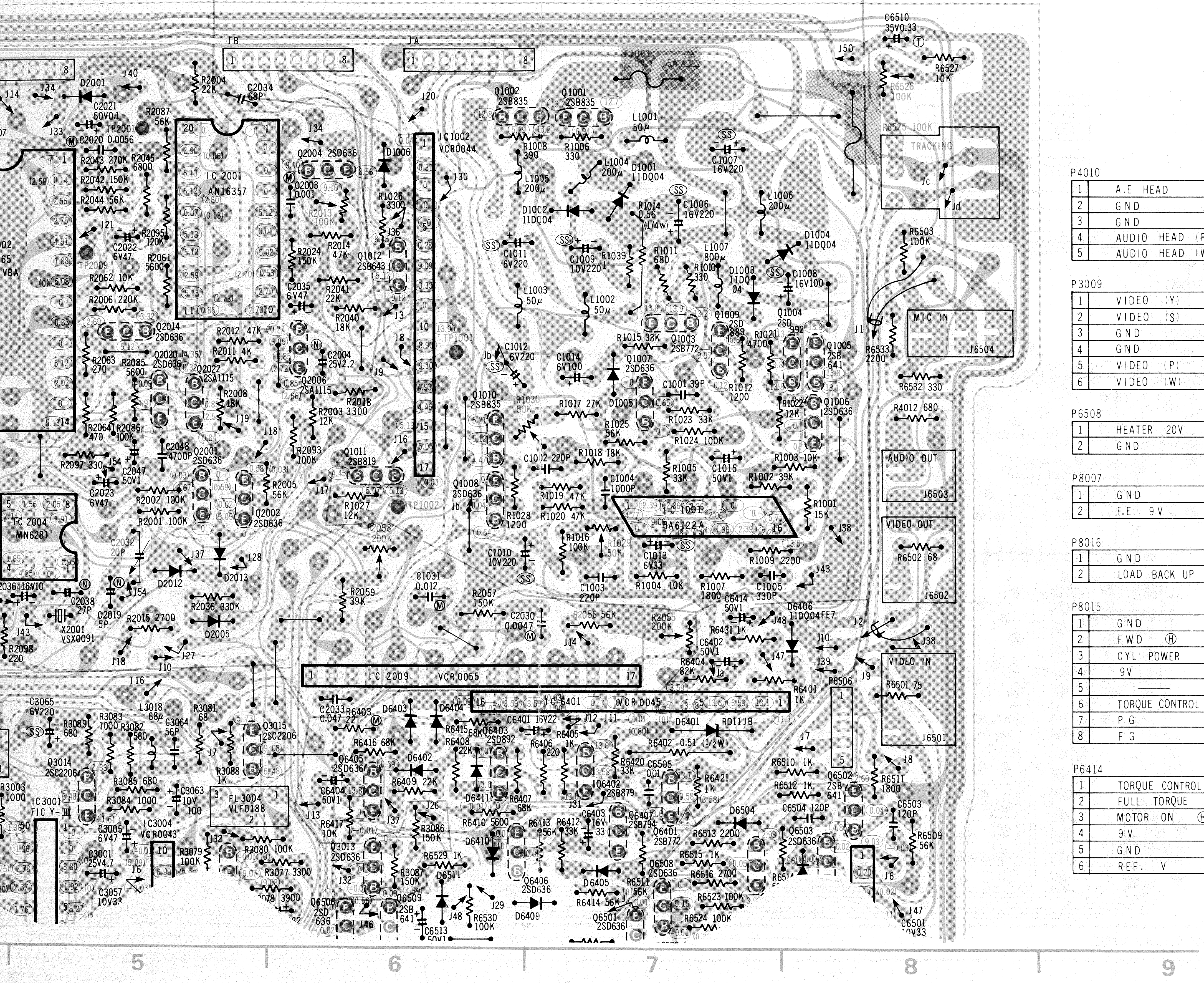
1	SERIAL CODE
2	IC & SERIAL Ⓛ
3	CAMERA IN Ⓛ
4	STAND BY
5	CAMERA PAUSE
6	CLOCK Ⅰ
7	CLOCK Ⅱ
8	SAFETY TAB
9	ANT. SW. CH. LOCK Ⓗ
10	———

P6505

1	SERIAL CODE
2	AUDIO IN
3	GND
4	CAMERA IN/OUT
5	GND
6	GND
7	STAND BY
8	CAMERA PAUSE
9	CLOCK Ⅰ
10	12V OUT



G
F
E
D
1
2
3
4
5
6
7
JD
JC
JB
JA
IC 2008 AN6914
IC 2005 AN6562
IC 2003 AN6356
IC 2002 MN6165 VBA
IC 2001 AN16357
IC 1002 VCR0044
IC 2006 VCR0053
IC 2007 MN1453 VFD
IC 2004 MN6281
IC 2009 VCR0055
IC 6401 VCR 0045
IC 8001 FIC C-Ⅲ
IC 3001 FIC Y-Ⅲ
IC 3004 VCR0043
RY 6401 VSY1008
FL 3001 VLF 0196
FL 3004 VLF0188
FL 8001 VLF0198
FL 8004 VLF0143
X 8001 VSX0068
X2001 VSX0091
L8009 ELM70 207A
FOR NV-100 EG
P2011
P2012
P6413
P6445
P6414
TP GND



IC 2001 AN16357
IC 2004 MN6281
IC1002 VCR0044
IC 1001 BA6122A
IC 2009 VCR0055
IC 6401 VCR 0045
IC3001 FIC Y-III
IC3004 VCR0043
FL 3004 VLF0188
F1001 250V T 0.5A
F1002 125V 1.6A
TRACKING
MIC IN
J6504
AUDIO OUT
J6503
VIDEO OUT
J6502
VIDEO IN
J6501
P6506
JB
JA
5
6
7
8
9

P4010

1	A.E HEAD
2	GND
3	GND
4	AUDIO HEAD (R)
5	AUDIO HEAD (W)

P3009

1	VIDEO (Y)
2	VIDEO (S)
3	GND
4	GND
5	VIDEO (P)
6	VIDEO (W)

P6508

1	HEATER 20V
2	GND

P8007

1	GND
2	F.E 9V

P8016

1	GND
2	LOAD BACK UP

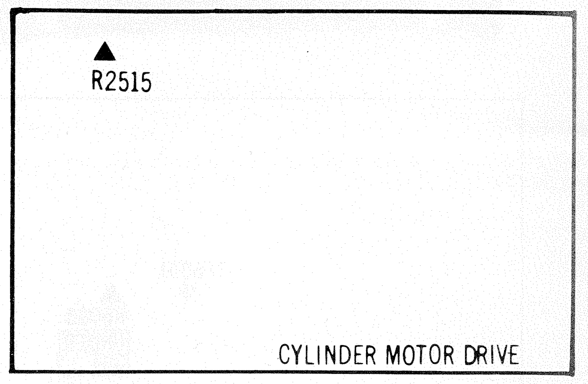
P8015

1	GND
2	FWD Ⓗ
3	CYL POWER
4	9V
5	———
6	TORQUE CONTROL
7	PG
8	FG

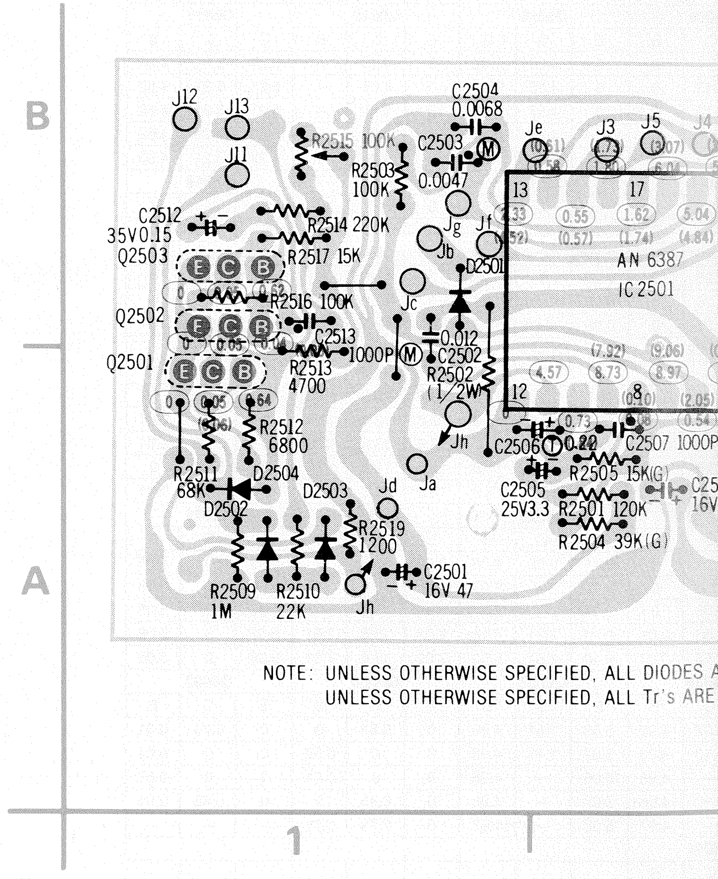
P6414

1	TORQUE CONTROL
2	FULL TORQUE
3	MOTOR ON Ⓗ
4	9V
5	GND
6	REF. V

CYLINDER MOTOR DRIVE P.C



▲
R2515
CYLINDER MOTOR DRIVE

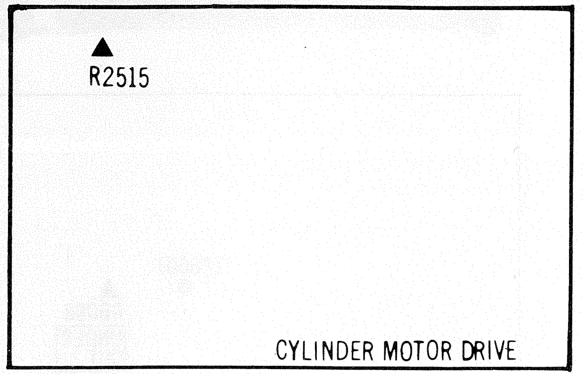


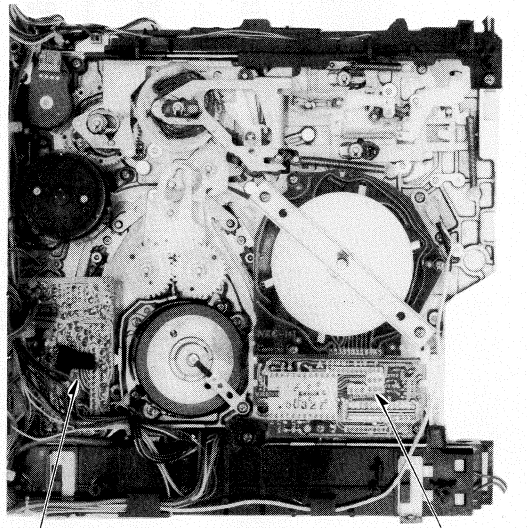
B
A
1
IC 2501
AN 6387
Q2501
Q2502
Q2503
D2501
D2502
D2503
D2504
R2515 100K
C2504 0.0068
C2503 0.0047
C2512 35V0.15
C2505 25V3.3
C2501 16V 47
R2504 39K(G)
R2505 15K(G)
R2501 120K

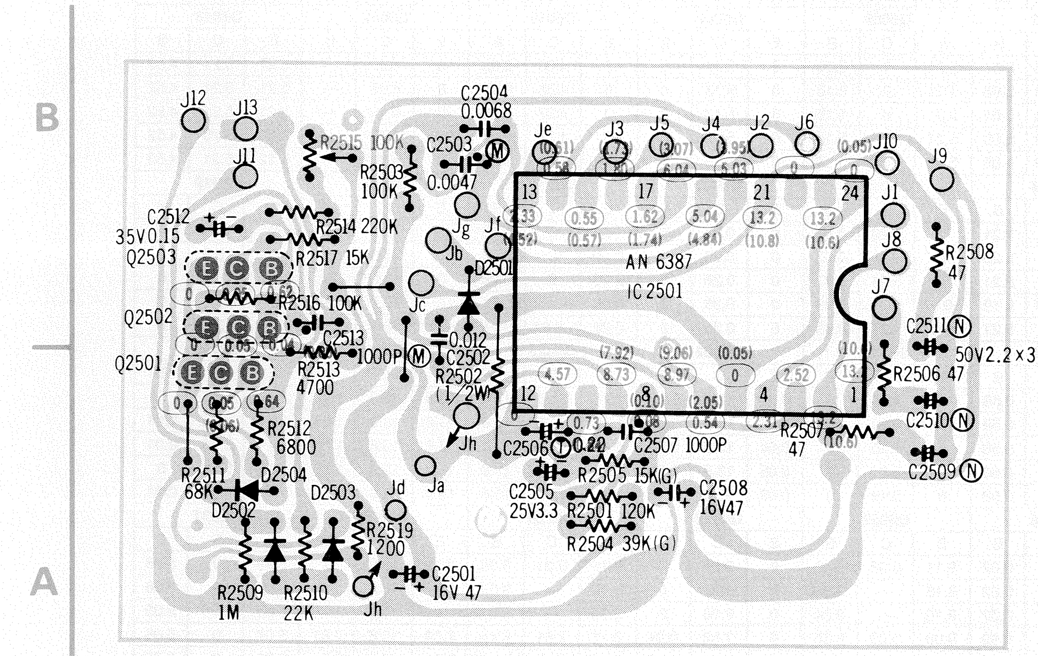
NOTE: UNLESS OTHERWISE SPECIFIED, ALL DIODES A
UNLESS OTHERWISE SPECIFIED, ALL Tr's ARE

EAD (R)
EAD (W)
Y)
S)
P)
W)
20V
CK UP
Ⓗ
ER
ONTROL
ONTROL
RQUE
N Ⓗ

CYLINDER MOTOR DRIVE P.C.B. UNIT [VEP02148B]


▲
R2515
CYLINDER MOTOR DRIVE


Cylinder Motor Drive C.B.A.
Capstan Motor Drive C.B.A.


B
A
J12
J13
J11
R2515 100K
R2503 100K
C2504 0.0068
C2503
0.0047
C2512 35V0.15
Q2503
Q2502
Q2501
R2514 220K
R2517 15K
R2516 100K
C2513 1000P
R2513 4700
R2512 6800
R2511 68K
D2502
D2504
D2503
R2519 1200
R2509 1M
R2510 22K
C2501 16V 47
D2501
C2502 0.012
R2502 ½W
AN 6387
IC 2501
C2505 25V3.3
R2501 120K
R2504 39K(G)
R2505 15K(G)
C2506
C2507 1000P
C2508 16V47
R2507 47
R2506 47
R2508 47
C2509
C2510
C2511
50V2.2×3

NOTE: UNLESS OTHERWISE SPECIFIED, ALL DIODES ARE MA165
UNLESS OTHERWISE SPECIFIED, ALL Tr's ARE 2SD636

TO P002 CYLINDER MOTOR

(J1)	1	VH+
(J2)	2	HES
(J3)	3	HEM
(J4)	4	HEM
(J5)	5	HES
(J6)	6	GND
(J7)	7	M2
(J8)	8	M3
(J9)	9	VM
(J10)	10	M1

TO P15 SERVO SECTION

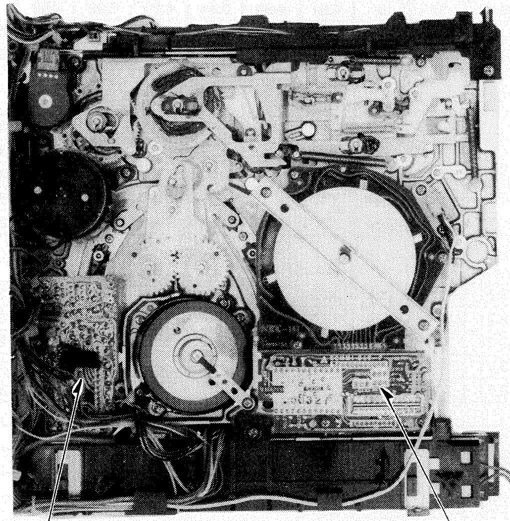
(Ja)	1	GND
(Jb)	2	FWD Ⓗ
(Jc)	3	CYL POWER
(Jd)	4	9V
	5	————
(Je)	6	TORQUE SIGNAL
(Jg)	7	PG
(Jf)	8	FG

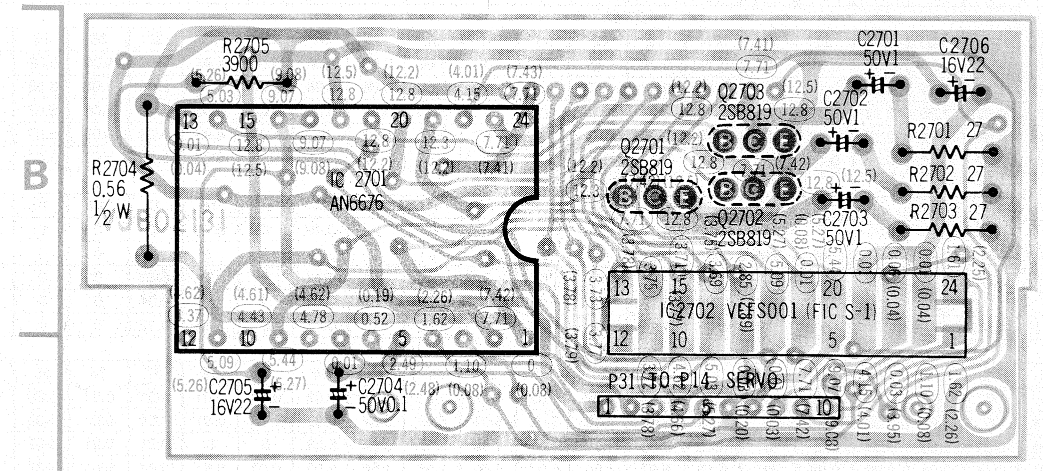
TO P45 SERVO SECTION

(J1)	1	TRACKING IN
(J2)	2	A-DUB Ⓛ
(J3)	3	TRACKING OUT

1 2 3

CAPSTAN MOTOR DRIVE P.C.B. UNIT [VEK1475]


Cylinder Motor Drive C.B.A.
Capstan Motor Drive C.B.A.


B
A
R2705 3900
R2704 0.56 ½W
IC 2701 AN6676
Q2701 2SB819
Q2702 2SB819
Q2703 2SB819
C2701 50V1
C2702 50V1
C2703 50V1
C2706 16V22
R2701 27
R2702 27
R2703 27
IC2702 VEFS001 (FIC S-1)
C2705 16V22
C2704 50V0.1
P31 TO P14 SERVO

P31 TO P14 SERVO

1	TORQUE INSTRUCTION
2	FULL TORQUE
3	MOTOR ON Ⓗ
4	9 V
5	G N D
6	REF. V
7	CURR LIM.
8	E D
9	E R
10	CAP. POWER

1 2

SYSTEM CONTROL ICs VOLTAGE CHART

REF. NO.	IC6001																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	0	0	0	4.80	4.93	0.38	4.80	0.02	4.92	0	0	0.22	—	—	5.21	5.09	5.21	0	0	5.18
PLAY	0.02	0	0	4.80	4.98	0.46	4.80	0.02	4.92	0	0	0.22	—	—	5.21	5.08	5.20	0	0	5.18
REC	0.02	0	0	4.81	4.98	0.44	4.80	0.02	4.93	0	0	0.22	—	—	5.21	5.07	5.21	0	0	5.19
F.F	0	0	0	4.80	4.95	0.32	4.80	0.02	4.92	5.07	0	5.19	—	—	5.21	5.07	5.21	0	0	5.18
REW	0.03	0	0	4.80	4.92	—	4.80	0.02	4.92	5.07	0	5.19	—	—	5.21	5.07	5.21	0	0	5.19

REF. NO.	IC6001																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
STOP	0	0	2.27	3.21	4.21	5.21	3.70	3.72	3.72	3.72	3.72	3.72	3.72	3.72	3.72	3.72	3.72	3.72	3.72	3.72
PLAY	0	0	2.25	3.20	4.20	5.21	3.70	3.72	3.72	3.72	3.71	3.71	3.70	3.71	3.71	3.71	3.72	3.72	3.72	3.72
REC	0	0	2.25	3.20	4.20	5.21	3.70	3.72	3.72	3.71	3.72	3.72	3.71	3.71	3.71	3.71	3.72	3.72	3.72	3.72
F.F	0	0	2.24	3.19	4.20	5.21	0.03	3.72	3.72	3.71	3.71	3.70	3.70	3.71	3.71	3.71	3.71	3.70	3.70	3.71
REW	0	0	2.24	3.20	4.20	5.21	3.69	3.71	3.71	3.72	3.70	3.70	3.70	3.71	3.70	3.71	3.71	3.70	3.70	3.71

REF. NO.	IC6001																			
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
STOP	3.71	3.75	3.74	3.74	3.75	3.74	3.74	3.75	3.74	3.74	3.75	3.73	3.75	3.74	0	0	1.70	5.21	3.15	0
PLAY	3.71	3.73	3.74	3.73	3.74	3.71	3.75	3.75	3.72	3.75	3.74	3.73	3.74	3.74	0	0	1.70	5.21	3.15	0
REC	3.71	3.73	3.74	3.74	3.74	3.72	3.75	3.75	3.70	3.70	3.73	3.74	3.75	3.73	0	0	1.71	5.21	3.15	0
F.F	3.71	3.73	3.70	3.74	3.73	3.71	3.74	3.72	3.71	3.74	3.74	3.72	3.73	3.73	0	0	1.70	5.21	3.15	0
REW	3.71	3.73	3.71	3.74	3.74	3.73	3.74	3.73	3.72	3.74	3.75	3.72	3.73	3.97	0	0	1.70	5.21	3.15	0

REF. NO.	IC6001																			
MODE	61	62	63	64																
STOP	5.14	4.96	4.95	5.21																
PLAY	—	—	—	5.21																
REC	—	—	—	5.21																
F.F	2.49	2.42	2.40	5.21																
REW	2.49	2.41	2.38	5.21																

REF. NO.	IC6002																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	0	0	0	5.08	0	0.04	5.08	0	0	5.03	5.06	4.35	4.26	0	0	0	0	0.42	1.26	1.13
PLAY	0	0	0	5.08	0	0.04	5.08	0.12	0	5.03	5.05	4.34	4.25	0	0	0	0	3.46	4.30	4.17
REC	0	0	0	5.07	0	0.04	5.06	0	0	5.01	5.03	4.33	4.23	0	0	0	0	3.44	4.29	0.93
F.F	0	0	0	5.07	0	0.04	5.07	0	0	5.02	5.04	4.31	4.32	0	0	0	0	0.28	1.05	4.23
REW	0	0	0	5.07	0	0.04	5.07	0	0	5.02	5.04	4.31	4.31	0	0	0	0	0.28	1.05	4.23

REF. NO.	IC6002																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
STOP	4.93	0	0	0.17	0.17	0	5.14	5.09	4.80	0	0	5.08	0.02	5.08	5.06	4.94	5.04	5.09	5.09	1.56
PLAY	4.95	0.02	1.35	0.17	0.12	0	5.14	5.08	4.80	0	0	5.08	5.08	5.08	0.02	4.93	5.04	5.08	5.08	1.57
REC	4.95	0.03	1.35	0.17	0.12	0	5.13	5.06	4.80	0	0	5.06	5.07	5.06	0.02	0.03	5.02	5.06	5.07	1.57
F.F	4.95	0.04	1.31	0.17	0.12	0	5.13	5.07	4.80	0	0	5.07	5.07	0	5.04	4.92	5.03	5.07	5.07	1.57
REW	4.93	0.02	1.30	0.17	0.14	0	5.13	5.07	4.80	0	0	0.01	5.07	5.07	5.04	4.92	5.02	5.07	5.07	1.57

REF. NO.	IC6003																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	0	4.95	0.04	0	0	0	5.08	4.96	0	0	0	0	0	0.49	0	5.08	0	0	0	0
PLAY	0	0	0.04	0	0	5.08	0	0.07	0	0	0	0	0	0.49	0	0	0	0	0	0
REC	0	4.94	4.99	5.00	5.00	5.06	5.06	0	0	0	0	0	0	0.44	0	0	0.03	0	0	0
F.F	0	4.93	0.04	0	0	5.07	5.07	4.94	0	5.07	0	4.79	0	0.41	0	0	0.04	0	0	0
REW	0	4.93	0.04	0	0	5.06	5.06	4.94	0	5.06	0	4.80	0	0.48	0	5.06	0.12	0	0	0

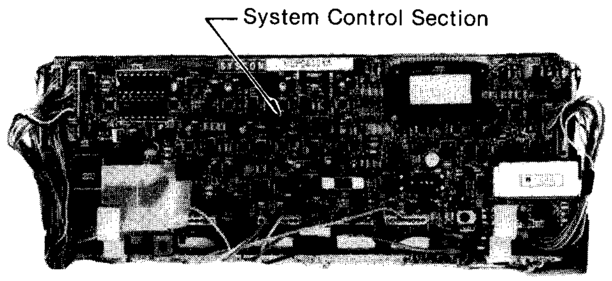
REF. NO.	IC6003																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
STOP	0	0	0	0.07	0.06	0	5.14	5.08	4.80	5.09	1.75	1.75	1.74	0.03	0.01	0.01	0.01	0.01	5.08	1.57
PLAY	5.21	0	5.04	0.07	0.07	0	5.14	5.08	4.80	5.08	5.07	5.07	5.07	5.05	5.08	0.01	0.01	0.01	5.08	1.57
REC	5.21	0.01	5.03	0.07	0.07	0	5.13	5.06	4.80	5.07	1.38	5.06	5.06	0.03	0	0	0.01	0.01	5.07	1.58
F.F	0.01	0.01	0.01	0.08	0.08	0	5.13	5.07	4.80	5.07	5.06	1.56	1.56	0.03	0.01	0.61	0.61	0.61	5.07	1.57
REW	0.01	5.04	0.01	0.08	0.08	0	5.13	5.07	4.80	5.07	5.06	1.57	1.56	0.03	0.01	0.61	0.61	0.61	5.07	1.57

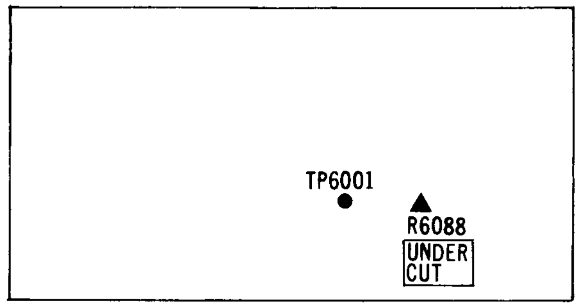
REF. NO.	IC6004																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
STOP	5.07	0	1.13	5.21	1.28	5.22	0.43	0	4.94	0.61	4.94	4.80	1.14	5.18	4.36	5.10				
PLAY	5.05	0	4.18	5.21	4.31	5.22	3.47	0	4.99	0.61	4.99	—	4.18	5.17	4.36	5.10				
REC	5.05	0	0.93	5.22	4.30	5.22	3.45	0.01	4.99	0.61	4.99	—	0.93	5.18	4.34	5.07				
F.F	5.05	0.01	4.24	5.22	1.05	5.22	0.29	0.01	4.96	0.61	4.96	—	4.24	5.17	4.32	5.08				
REW	5.05	0.01	4.24	5.21	1.06	5.22	0.29	0.01	4.94	0.61	4.94	—	4.24	5.17	4.32	5.08				

REF. NO.	IC6005																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
STOP	4.27	0.61	0.43	4.84	4.94	0.60	1.14	0	1.27	5.16	0.43	0.03	1.27	0	4.36	5.10				
PLAY	4.26	0.61	3.47	—	4.99	0.60	4.18	0	4.31	5.16	3.47	0.04	4.31	0	4.36	5.09				
REC	4.24	0.61	3.45	—	4.99	0.60	0.93	0.01	4.30	5.17	3.45	0.04	4.30	0	4.34	5.08				
F.F	4.33	0.61	0.29	—	4.97	0.60	4.24	0.01	1.06	5.17	0.28	0.04	1.05	0.01	4.32	5.08				
REW	4.33	0.61	0.29	—	4.94	0.60	4.24	0.01	1.06	5.17	0.29	0.04	1.06	0.01	4.32	5.08				

REF. NO.	IC6006																			
MODE	1	2	3	4	5	6	7	8												
STOP	4.93	0.02	0.72	0	4.92	—	5.21	13.9												
PLAY	4.93	0.02	0.72	0	4.91	—	5.21	13.8												
REC	4.93	0.02	0.72	0	4.92	—	5.22	13.9												
F.F	4.93	0.02	0.72	0	4.91	—	5.21	13.8												
REW	4.93	0.02	0.72	0	4.91	—	5.21	13.8												

System Control C.B.A			
Q1	A-3	Q25	B-3
Q2	B-3	Q26	B-5
Q3	A-5	Q27	B-5
Q4	A-4	Q28	B-4
Q5	B-5	Q29	C-5
Q6	B-5	Q30	C-5
Q7	B-4	Q31	C-4
Q8	B-8	Q32	C-4
Q9	B-8	Q33	B-5
Q10	B-2	Q34	A-1
Q12	B-7	Q35	B-5
Q13	B-7	Q36	C-6
Q14	B-8	Q37	C-6
Q15	B-8	Q39	B-3
Q16	B-7	Q40	B-7
Q17	B-7	Q41	C-8
Q18	B-8		
Q19	B-8	IC1	A-7
Q20	A-8	IC2	B-1
Q21	A-8	IC3	C-2
Q22	C-7	IC4	A-2
Q23	B-7	IC5	A-2
Q24	C-7		





SYSTEM CONTROL TRANSISTORs VOLTAGE CHART

REF. NO.	Q6001			Q6002			Q6003			Q6004			Q6005			Q6006		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	4.48	0.09	5.07	5.21	5.14	4.50	4.48	0.14	5.07	5.21	0.02	5.13	4.50	0.12	5.07	4.50	−0.83	5.03
PLAY	4.48	−0.28	5.06	5.21	−0.27	5.14	4.48	−0.50	5.06	5.21	5.15	4.51	4.48	−0.29	5.06	4.48	−0.31	5.02
REC	3.95	0.31	5.05	5.22	0.22	5.13	3.96	0.29	5.05	5.22	5.15	4.52	3.96	3.87	3.27	3.95	−0.34	5.01
F.F	3.96	0.35	5.05	5.21	−0.35	5.13	3.96	3.89	3.27	5.21	0.01	5.11	3.96	0.23	5.05	3.96	−0.28	5.01
REW	3.96	3.90	3.27	5.21	−0.33	5.13	3.96	0.30	5.05	5.22	0.02	5.12	3.95	0.09	5.06	3.95	−0.23	5.01

REF. NO.	Q6007			Q6008			Q6009			Q6010			Q6012			Q6013		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	4.47	−0.55	5.07	5.21	0	5.19	0	5.14	0	0	4.80	0.02	0	4.80	—	5.21	5.21	4.53
PLAY	4.48	−0.34	5.06	5.21	0	5.18	0	5.13	0	0	4.88	0.01	0	4.87	—	5.21	5.21	4.52
REC	3.96	−0.31	5.05	5.21	0	5.18	0	5.13	0	0	4.87	0.02	0	4.89	—	5.21	5.21	4.52
F.F	3.95	−0.02	5.05	5.21	0	5.18	0	5.12	0	0	4.76	0.01	0	4.77	—	5.21	5.20	4.52
REW	3.95	−0.19	5.06	5.22	0	5.19	0	5.13	0	0	4.82	0.02	0	4.80	—	5.22	5.21	4.53

REF. NO.	Q6014			Q6015			Q6016			Q6017			Q6018			Q6019		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	5.21	0	5.21	0	5.22	0.03	0	0.27	0	0	0	0.26	0	13.9	0	0	13.9	0
PLAY	5.20	0	5.20	0	5.21	0.03	0	0.26	0	0.29	0	0.26	0	13.8	0	0	13.8	0
REC	5.21	0	5.21	0	5.21	0.03	0	0.26	0	0.29	0	0.26	0	13.8	0	0	13.8	0
F.F	5.20	−0.01	5.19	−0.01	5.21	0.03	0	0.26	0	0.28	−0.01	0.26	0	13.8	0	0	13.8	0
REW	5.21	0	5.21	−0.01	5.21	0.03	0	0.26	0	0.28	−0.01	0.26	−0.01	13.8	−0.01	0	13.8	0

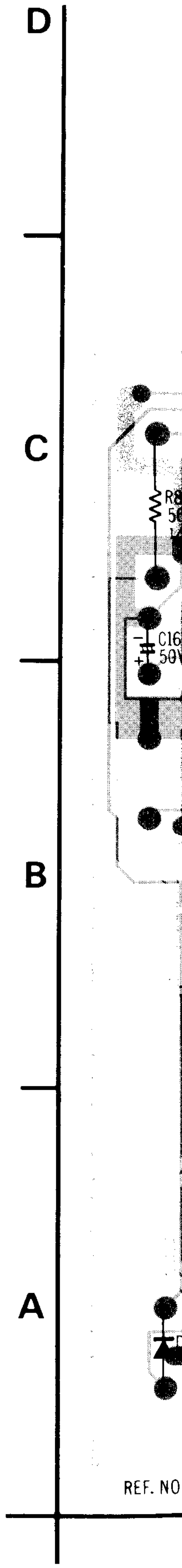
REF. NO.	Q6020			Q6021			Q6022			Q6023			Q6024			Q6025		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	0	0.03	0.59	0	5.20	0	0.05	13.9	0.29	13.9	13.6	13.9	13.9	13.9	13.6	0	5.15	0
PLAY	0	0.02	0.59	0	5.20	0	0.05	13.8	0.29	13.8	13.5	13.8	13.8	13.8	13.5	0	5.15	0.01
REC	0	0.02	0.58	0	5.20	0	0.04	13.8	0.29	13.8	13.6	13.8	13.8	13.8	13.6	0	5.16	0.01
F.F	0	0.03	0.60	0	5.21	0	0.05	13.8	0.30	13.8	13.5	13.8	13.8	13.8	13.5	0	5.14	0
REW	0	0.02	0.58	0	5.19	0	0.03	13.8	0.28	13.8	13.5	13.8	13.8	13.8	13.5	0	5.15	0.01

REF. NO.	Q6026			Q6027			Q6028			Q6029			Q6030			Q6031		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	0	8.69	0.02	9.11	0.28	9.05	0	9.07	0	9.11	0.01	9.08	0.02	13.9	0	5.09	0	5.08
PLAY	0	8.68	0.02	9.10	—	9.04	0	9.06	0	9.10	—	9.07	—	13.8	—	5.08	0	5.06
REC	0	8.69	0.02	9.10	—	9.04	0	9.06	0	9.11	—	9.07	—	13.8	—	5.06	0	5.05
F.F	0	0.03	0.59	9.09	9.03	8.36	0	7.53	0.08	9.11	7.61	8.54	7.03	13.8	7.61	5.07	0	5.06
REW	0	0.03	0.60	9.09	9.03	8.36	0	7.52	0.07	9.10	7.61	8.53	7.02	13.8	7.61	5.06	0	5.05

REF. NO.	Q6032			Q6033			Q6034			Q6035			Q6036			Q6037		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	5.08	0	5.07	5.09	0.49	5.08	5.08	2.07	4.97	5.09	1.61	4.99	0	0.63	0	0	0.73	0.01
PLAY	5.08	0	5.06	5.08	0.50	5.07	5.08	2.13	4.96	5.07	1.73	4.98	0	0	0.58	0	0	0.01
REC	5.06	0	5.05	5.06	0.47	5.05	5.06	—	4.95	5.06	—	4.96	0	0	0.01	0	0	0.57
F.F	5.07	0	5.06	5.07	—	5.06	5.07	—	4.96	5.07	—	4.96	0	0.40	0	0	0.46	0.01
REW	5.06	0	5.05	5.06	—	5.05	5.08	—	4.97	5.08	—	4.97	0	0.75	0.01	—	—	—

REF. NO.	Q6039			Q6040			Q6041											
MODE	E	C	B	E	C	B	E	C	B									
STOP	0	0.01	0.59	0	0	0.29	0	3.09	0									
PLAY	0	4.36	0	0	0	0.29	0	3.07	0									
REC	0	4.35	0.01	0	0	0.29	0	3.08	0									
F.F	0	0.01	0.59	0	0	0.29	0	3.07	0									
REW	—	—	—	—	—	—	—	—	—									

SYSTEM



SYSTEM & COUNTER CONTROL P.C.B. UNIT [VEP06164A]

P27

GND	1
GND	2

JE

SAFETY TAB SW	1
GND	2

P21

1	5V BACK UP
2	DEW SENSOR
3	TAKEUP PH. TR
4	TAPE SNS. LED

1	SERIAL CODE
2	SERIAL CLK (2)
3	SLOW TRACKING
4	GND
5	+5V
6	SLOW TR. VCC

P20

1	SUPPLY PH. TR
2	CASSETTE DOWN Ⓛ
3	CASSETTE UP Ⓛ

P22

1	INDEX SIGNAL
2	GND
3	STOP POSITION
4	T2
5	GND
6	T1
7	EJECT POSITION
8	GND
9	REEL SENS. LED
10	S1

JD

1	CYL. LOCK Ⓗ
2	CAP REVERSE Ⓗ
3	FWD 5V
4	SLOW TRACING
5	SLOW .F. ADV Ⓗ
6	STOP Ⓗ
7	LOADING Ⓗ
8	UNLOADING Ⓗ

JC

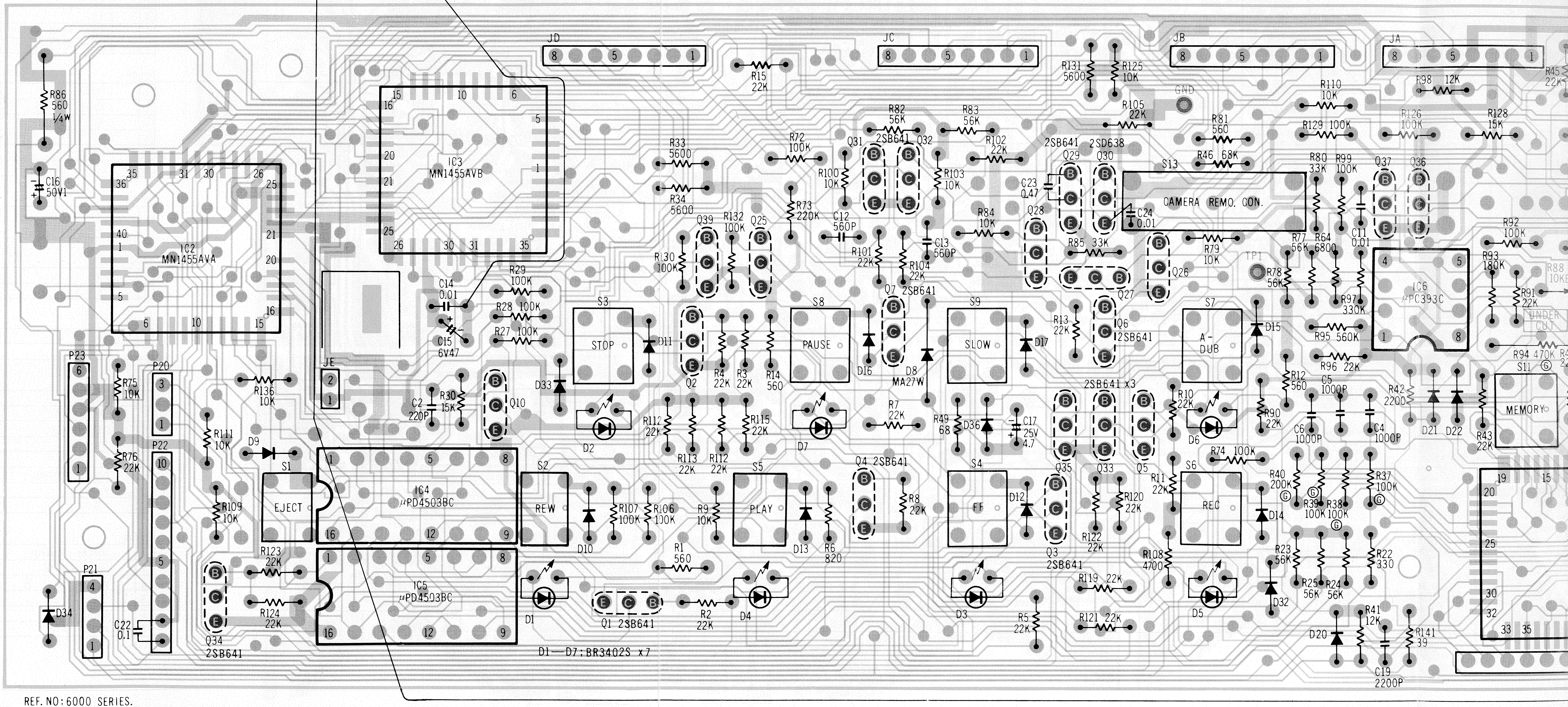
1	A− DUB Ⓛ
2	SLOW TR. VCC
3	CAP C/R 2^3H
4	PAUSE RESET Ⓛ
5	CAP 2^2 Ⓗ
6	CAP ON 2^0 Ⓗ
7	——
8	SPEED FIX Ⓛ

JB

1	DELAYED REC Ⓗ
2	AUDIO REC Ⓗ
3	REC Ⓛ
4	FULL ERASE Ⓗ
5	V-V VIDEO Ⓗ
6	SAFETY TAB ON Ⓛ
7	REF 177 KHz
8	REF 886 KHz

JA

1
2
3
4
5
6
7
8


D
C
B
A
1
2
3
4
5
6
JD
JC
JB
JA
IC3 MN1455AVB
IC2 MN1455AVA
IC4 μPD4503BC
IC5 μPD4503BC
IC6 μPC393C
CAMERA REMO. CON.
S13
S1 EJECT
S2 REW
S3 STOP
S4 FF
S5 PLAY
S6 REC
S7 A-DUB
S8 PAUSE
S9 SLOW
S11 MEMORY
P20
P21
P22
P23
JE
GND
TP1
UNDER CUT
R86 560 1/4W
C16 50V1
R75 10K
R76 22K
R136 10K
R111 10K
R109 10K
D9
R123 22K
R124 22K
Q34 2SB641
D34
C22 0.1
C14 0.01
C15 6V47
C2 220P
R30 15K
Q10
R29 100K
R28 100K
R27 100K
D33
D11
D2
R33 5600
R34 5600
R130 100K
Q39
R132 100K
Q25
Q2
R4 22K
R3 22K
R14 560
R112 22K
R113 22K
R112 22K
R115 22K
R107 100K
R106 100K
R9 10K
D10
R1 560
D1
Q1 2SB641
R2 22K
D4
D13
R6 820
D1—D7: BR3402S x7
R15 22K
R72 100K
R73 220K
C12 560P
R100 10K
R82 56K
2SB641
Q31
Q32
R101 22K
R104 22K
C13 560P
R103 10K
Q7 2SB641
D16
D8 MA27W
D7
R7 22K
R49 68
D36
C17 25V 4.7
Q4 2SB641
R8 22K
D3
D12
R83 56K
R102 22K
R84 10K
Q28
C23 0.47
2SB641 2SD638
Q29 Q30
R85 33K
Q27
Q26
C24 0.01
R13 22K
Q6 2SB641
D17
2SB641 x3
Q35
Q33
Q5
Q3 2SB641
R122 22K
R120 22K
R119 22K
R121 22K
R5 22K
R131 5600
R125 10K
R105 22K
R81 560
R46 68K
R79 10K
R10 22K
D6
R11 22K
R108 4700
D5
R74 100K
D15
R78 56K
R12 560
R90 22K
C5 1000P
C6 1000P
C4 1000P
D14
D32
R40 200K
R39 100K
R38 100K
R37 100K
R23 56K
R25 56K
R24 56K
R22 330
D20
R41 12K
C19 2200P
R141 39
R110 10K
R129 100K
R80 33K
R99 100K
R77 56K
R64 6800
C11 0.01
Q37
Q36
R97 330K
R95 560K
R96 22K
R42 2200
D21
D22
R43 22K
R98 12K
R126 100K
R128 15K
R92 100K
R93 180K
R91 22K
R94 470K
R88 10K
R45 22K
19
20
25
30
32
33
35

REF. NO: 6000 SERIES.

DELAYED REC Ⓗ
AUDIO REC Ⓗ
REC Ⓛ
FULL ERASE Ⓗ
V-V VIDEO Ⓗ
SAFETY TAB ON Ⓛ
REF 177 KHz
REF 886 KHz

JA

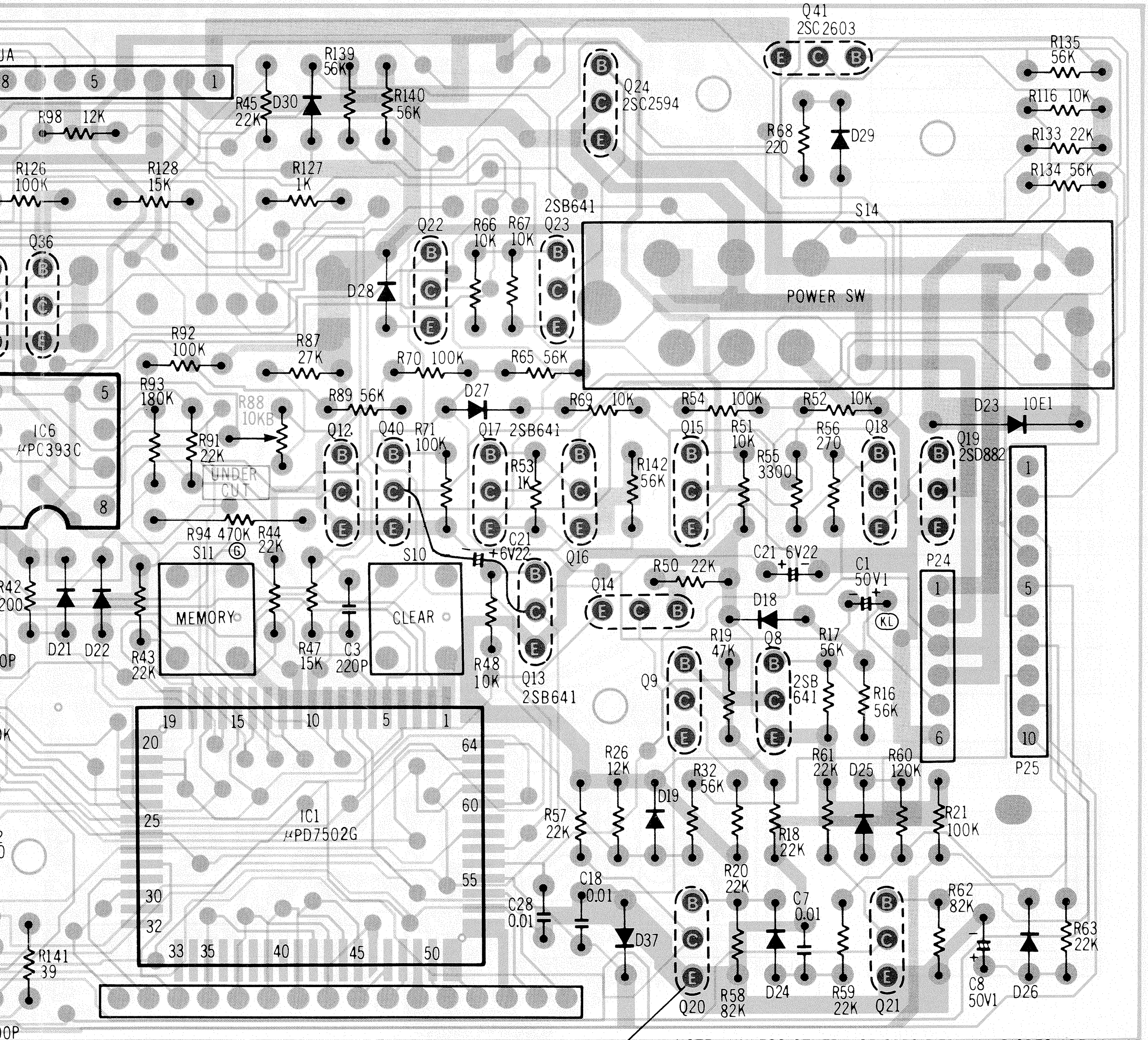
1	GND
2	12V OUT
3	+9V
4	+5V
5	9V OFF Ⓗ
6	CURR. EMPHA Ⓛ
7	AUDIO MUTE Ⓗ
8	AUDIO EE Ⓗ

P24

1	12V OUT
2	BATT. CHARGE
3	12V IN
4	12V IN
5	EXT 12V
6	GND

P25

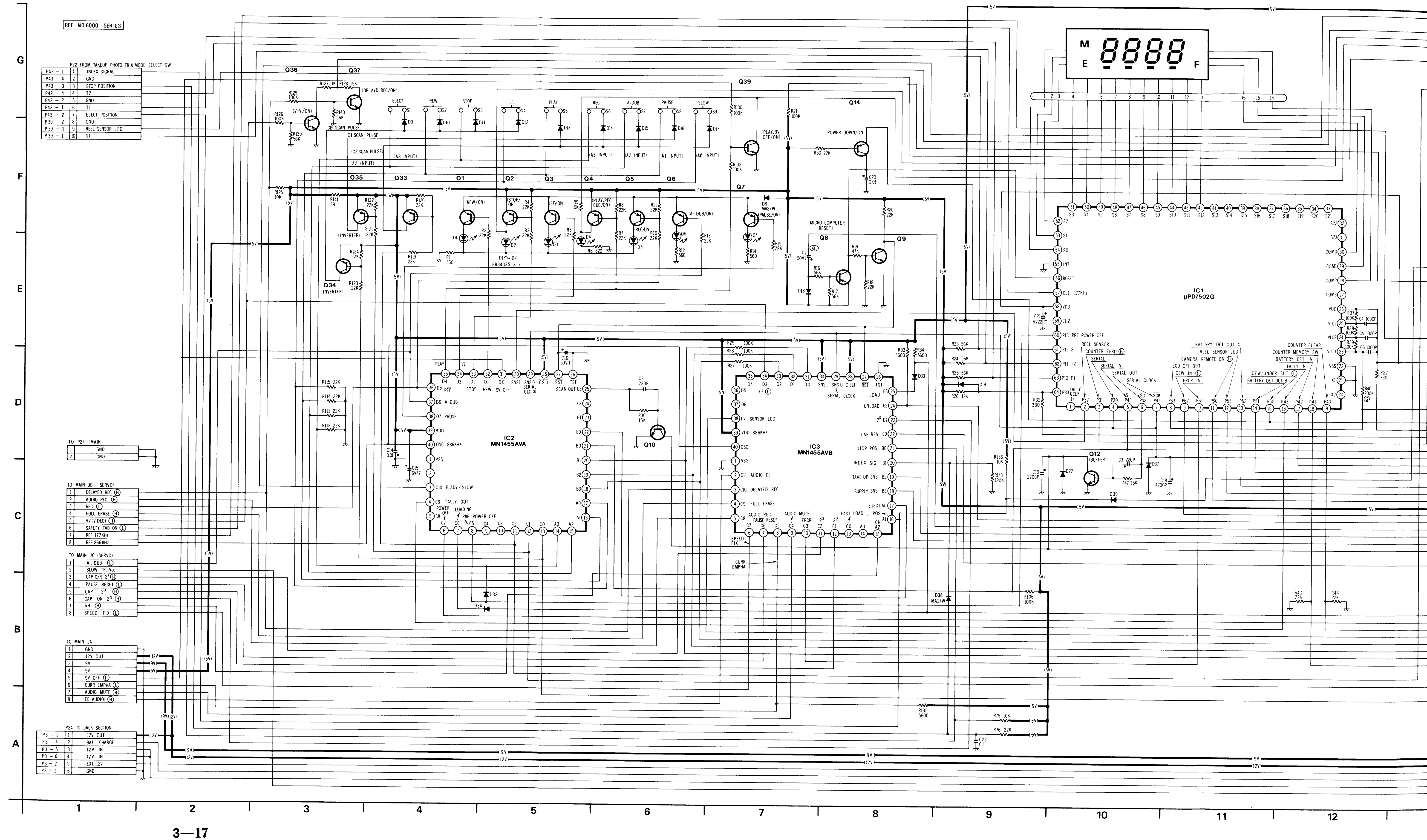
1	——
2	ANT SW. CH LOCK
3	CAMERA IN Ⓛ
4	SAFETY TAB
5	SERIAL CLK (2)
6	SERIAL CODE
7	TC Ⓛ & SERIAL
8	TALLY & CLK (1)
9	CAMERA PAUSE Ⓛ
10	STAND-BY Ⓗ

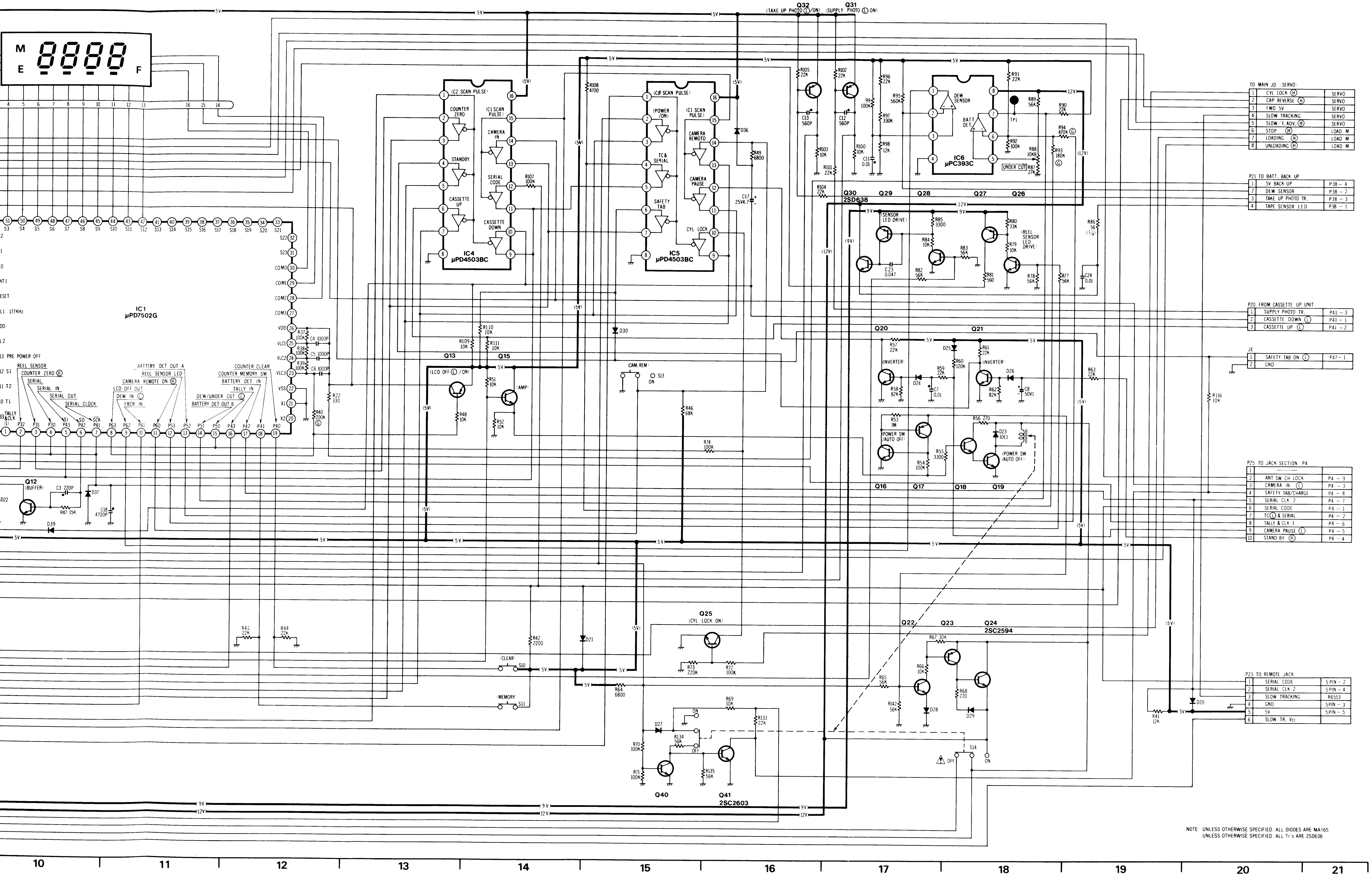

JA
8
5
1
R139 56K
R45 22K
D30
R140 56K
Q24 2SC2594
Q41 2SC2603
R135 56K
R116 10K
R133 22K
R134 56K
R98 12K
R68 220
D29
R126 100K
R128 15K
R127 1K
2SB641
Q22
R66 10K
R67 10K
Q23
S14
POWER SW
Q36
D28
R92 100K
R87 27K
R70 100K
R65 56K
R93 180K
R88 10KB
R89 56K
D27
R69 10K
R54 100K
R52 10K
D23
10E1
IC6
μPC393C
5
8
R91 22K
UNDER CUT
Q12
Q40
R71 100K
Q17 2SB641
R53 1K
R142 56K
Q15
R51 10K
R55 3300
R56 270
Q18
Q19 2SD882
R94 470K
R44 22K
S11
C21 +6V22
Q16
R50 22K
C21 6V22
C1 50V1
P24
S10
R42 200
D21
D22
R43 22K
MEMORY
R47 15K
C3 220P
CLEAR
R48 10K
Q13 2SB641
Q14
D18
KL
R19 47K
Q8
2SB 641
R17 56K
R16 56K
Q9
1
5
6
10
P25
IC1
μPD7502G
19
15
10
5
1
20
64
25
60
30
32
55
33
35
40
45
50
R26 12K
D19
R32 56K
R57 22K
R61 22K
D25
R60 120K
R21 100K
R18 22K
R20 22K
C28 0.01
C18 0.01
D37
R62 82K
C7 0.01
R63 22K
R141 39
Q20
R58 82K
D24
R59 22K
Q21
C8 50V1
D26

NOTE: UNLESS OTHERWISE SPECIFIED, ALL DIODES ARE MA165
UNLESS OTHERWISE SPECIFIED, ALL Tr's ARE 2SD636

6 7 8

SYSTEM & COUNTER CONTROL SCHEMATIC DIAGRAM


REF. NO 6000 SERIES
P22 FROM TAKEUP PHOTO TR & MODE SELECT SW
P43 - 1 | 1 | INDEX SIGNAL
P43 - 4 | 2 | GND
P43 - 3 | 3 | STOP POSITION
P42 - 4 | 4 | T2
P42 - 2 | 5 | GND
P42 - 1 | 6 | T1
P43 - 2 | 7 | EJECT POSITION
P39 2 | 8 | GND
P39 - 3 | 9 | REEL SENSOR LED
P39 - 1 | 10 | S1
TO P27 (MAIN)
1 GND
2 GND
TO MAIN JB (SERVO)
1 DELAYED REC Ⓗ
2 AUDIO REC Ⓗ
3 REC Ⓛ
4 FULL ERASE Ⓗ
5 VV (VIDEO) Ⓗ
6 SAFETY TAB ON Ⓛ
7 REF 177KHz
8 REF 866KHz
TO MAIN JC (SERVO)
1 A. DUB Ⓛ
2 SLOW TR. Vcc
3 CAP C/R 2³ Ⓗ
4 PAUSE RESET Ⓛ
5 CAP 2² Ⓗ
6 CAP ON 2⁰ Ⓗ
7 6H Ⓗ
8 SPEED FIX Ⓛ
TO MAIN JA
1 GND
2 12V OUT
3 9V
4 5V
5 9V OFF Ⓗ
6 CURR EMPHA Ⓛ
7 AUDIO MUTE Ⓗ
8 EE (AUDIO) Ⓗ
P24 TO JACK SECTION
P3 - 1 | 1 | 12V OUT
P3 - 4 | 2 | BATT CHARGE
P3 - 5 | 3 | 12V IN
P3 - 6 | 4 | 12V IN
P3 - 2 | 5 | EXT 12V
P3 - 3 | 6 | GND
Q36
Q37
Q39
Q14
Q35
Q33
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q34 (INVERTER)
Q8
Q9
Q10
Q12 (BUFFER)
EJECT
REW
STOP
F.F.
PLAY
REC
A.DUB
PAUSE
SLOW
(POWER DOWN/ON)
(PLAY, 9V OFF/ON)
(MICRO COMPUTER RESET)
D1 ~ D7 BR3402S × 7
IC1 μPD7502G
IC2 MN1455AVA
IC3 MN1455AVB
M E F
5V
9V
12V
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12

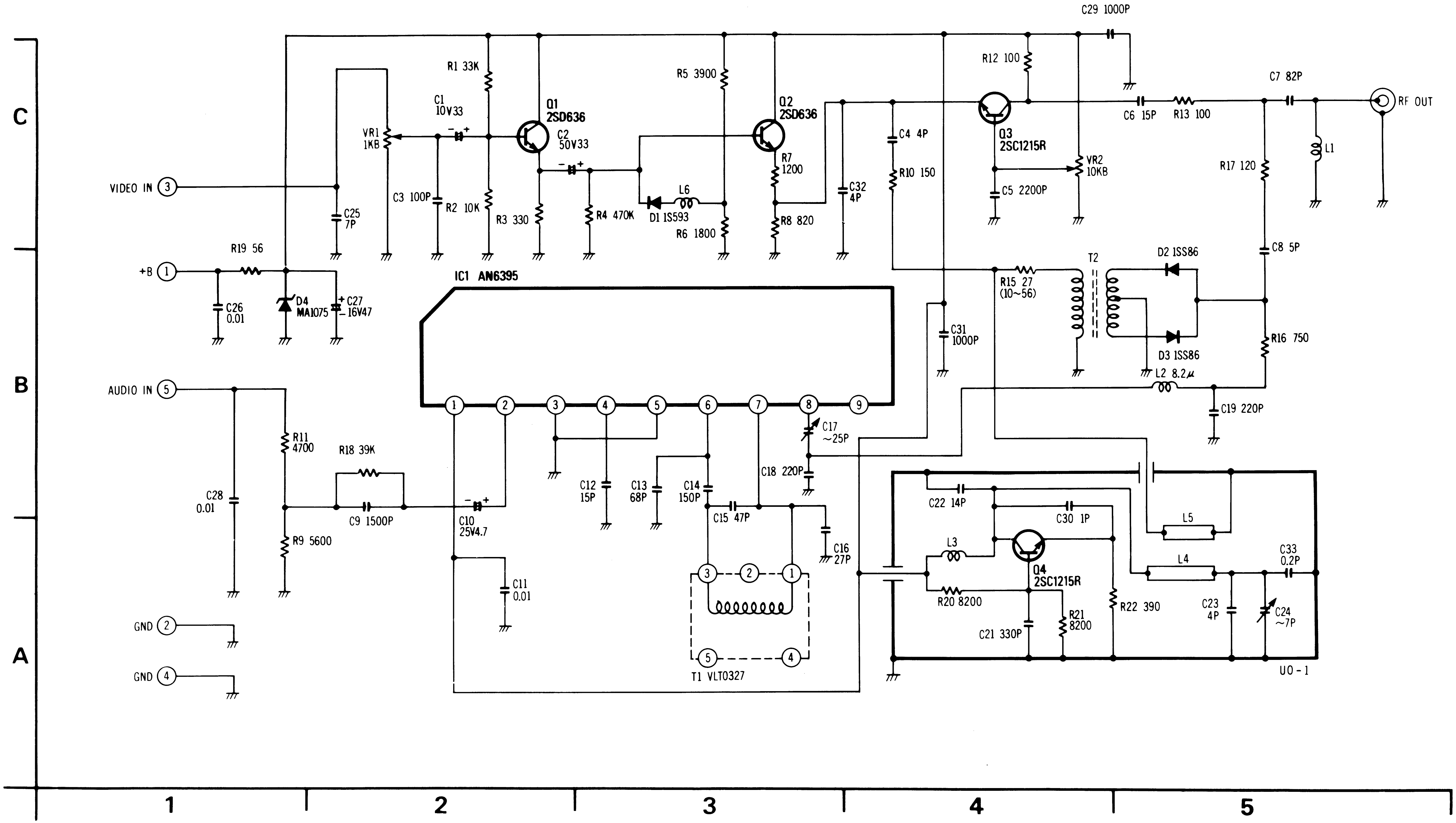

M
E
8888
F
IC1
μPD7502G
IC4
μPD4503BC
IC5
μPD4503BC
IC6
μPC393C
Q32
(TAKE UP PHOTO Ⓛ/ON)
Q31
(SUPPLY PHOTO Ⓛ ON)
(C2 SCAN PULSE)
COUNTER ZERO
STANDBY
CASSETTE UP
(C1 SCAN PULSE)
CAMERA IN
SERIAL CODE
CASSETTE DOWN
(C0 SCAN PULSE)
(POWER /ON)
TC& SERIAL
SAFETY TAB
CAMERA REMOTO
CAMERA PAUSE
CYL LOCK
DEW SENSOR
BATT DET.
UNDER CUT
TP1
Q30
2SD638
Q29
Q28
Q27
Q26
(SENSOR LED DRIVE)
(REEL SENSOR LED DRIVE)
Q20
Q21
(INVERTER)
(POWER SW /AUTO OFF)
Q16
Q17
Q18
Q19
Q12
(BUFFER)
Q13
(LCD OFF Ⓛ/ON)
Q15
(AMP)
(CAM.REM)
S13
ON
Q25
(CYL LOCK ON)
Q22
Q23
Q24
2SC2594
(CLEAR)
S10
(MEMORY)
S11
Q40
Q41
2SC2603
S14
OFF
ON
REEL SENSOR
COUNTER ZERO Ⓗ
SERIAL
SERIAL IN
SERIAL OUT
SERIAL CLOCK
BATTERY DET OUT A
REEL SENSOR LED
CAMERA REMOTE ON Ⓗ
LCD OFF OUT
DEW IN Ⓛ
FRCR IN
COUNTER CLEAR
COUNTER MEMORY SW
BATTERY DET IN
TALLY IN
DEW/UNDER CUT Ⓛ
BATTERY DET OUT B
PRE POWER OFF
177KHz
TO MAIN JD (SERVO)
1 CYL LOCK Ⓗ SERVO
2 CAP REVERSE Ⓗ SERVO
3 FWD 5V SERVO
4 SLOW TRACKING SERVO
5 SLOW/F. ADV. Ⓗ SERVO
6 STOP Ⓗ LOAD M
7 LOADING Ⓗ LOAD M
8 UNLOADING Ⓗ LOAD M
P21 TO BATT. BACK UP
1 5V BACK UP P38 – 4
2 DEW SENSOR P38 – 2
3 TAKE UP PHOTO TR. P38 – 3
4 TAPE SENSOR LED P38 – 1
P20 FROM CASSETTE UP UNIT
1 SUPPLY PHOTO TR. P41 – 3
2 CASSETTE DOWN Ⓛ P41 – 1
3 CASSETTE UP Ⓛ P41 – 2
JE
1 SAFETY TAB ON Ⓛ P47 – 1
2 GND
P25 TO JACK SECTION P4
1
2 ANT SW CH LOCK P4 – 9
3 CAMERA IN Ⓛ P4 – 3
4 SAFETY TAB/CHARGE P4 – 8
5 SERIAL CLK 2 P4 – 7
6 SERIAL CODE P4 – 1
7 TCⓁ & SERIAL P4 – 2
8 TALLY & CLK 1 P4 – 6
9 CAMERA PAUSE Ⓛ P4 – 5
10 STAND BY Ⓗ P4 – 4
P23 TO REMOTE JACK
1 SERIAL CODE 5PIN – 2
2 SERIAL CLK 2 5PIN – 4
3 SLOW TRACKING R6553
4 GND 5PIN – 3
5 5V 5PIN – 5
6 SLOW TR. Vcc
5V
(5V)
9V
(12V)
10
11
12
13
14
15
16
17
18
19
20
21

NOTE: UNLESS OTHERWISE SPECIFIED, ALL DIODES ARE MA165
UNLESS OTHERWISE SPECIFIED, ALL Tr's ARE 2SD636

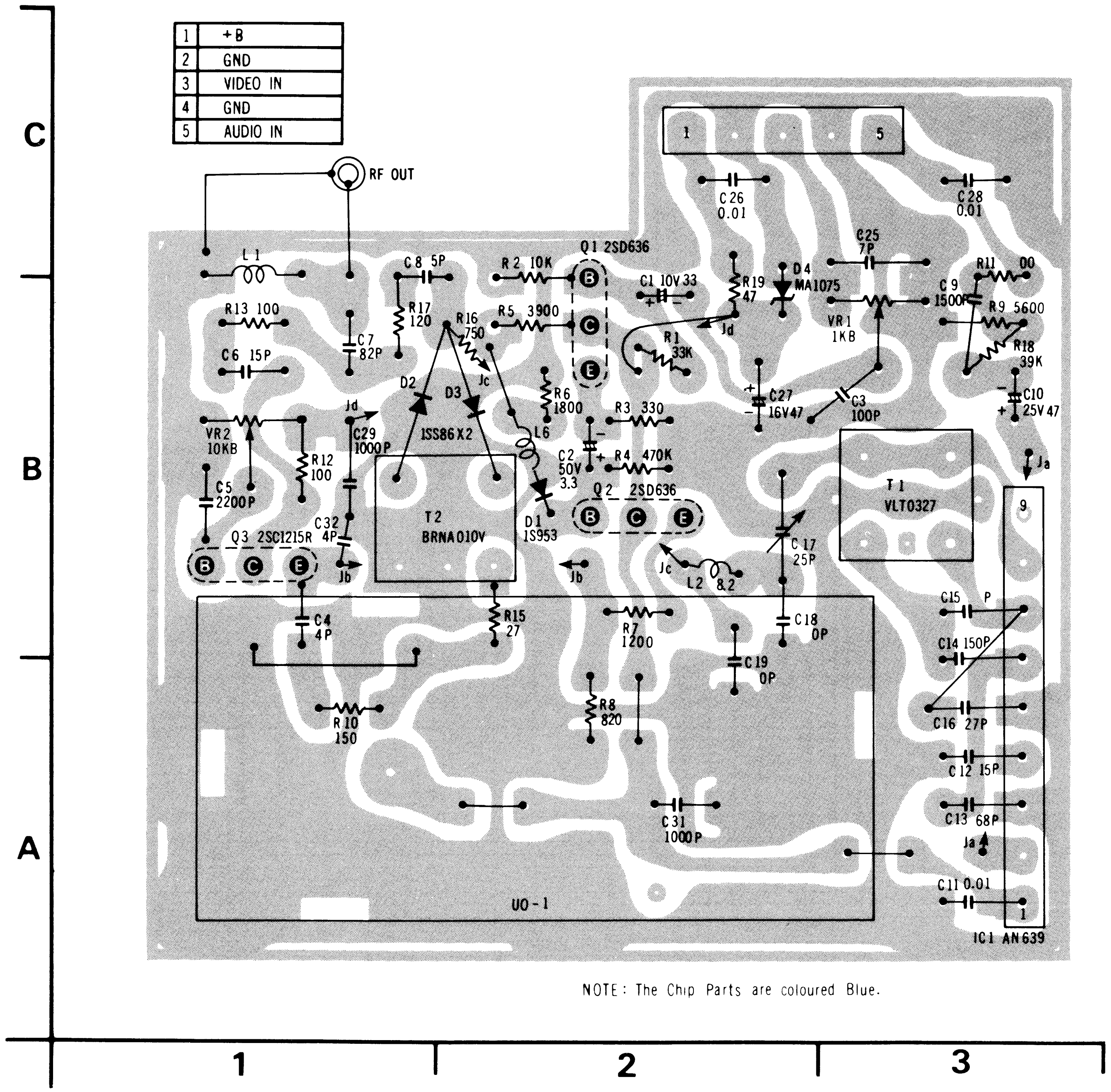
System Control Schematic	
Q6001	F-4
Q6002	F-5
Q6003	F-5
Q6004	F-5
Q6005	F-6
Q6006	F-6
Q6007	F-7
Q6008	E-8
Q6009	E-8
Q6010	D-6
Q6012	C-10
Q6013	D-13
Q6014	F-8
Q6015	D-14
Q6016	D-17
Q6017	D-17
Q6018	D-18
Q6019	D-18
Q6020	E-17
Q6021	E-18
Q6022	B-17
Q6023	C-18
Q6024	C-18
Q6025	B-15
Q6026	E-18
Q6027	E-18
Q6028	E-17
Q6029	E-17
Q6030	E-17
Q6031	G-17
Q6032	G-16
Q6033	E-4
Q6034	E-3
Q6035	E-4
Q6036	F-3
Q6037	F-4
Q6039	F-7
Q6040	A-15
Q6041	A-16
IC6001	E-11
IC6002	C-5
IC6003	C-7
IC6004	F-13
IC6005	F-15
IC6006	F-18

RF CONVERTER SCHEMATIC DIAGRAM (ENC17553)

RF CONV

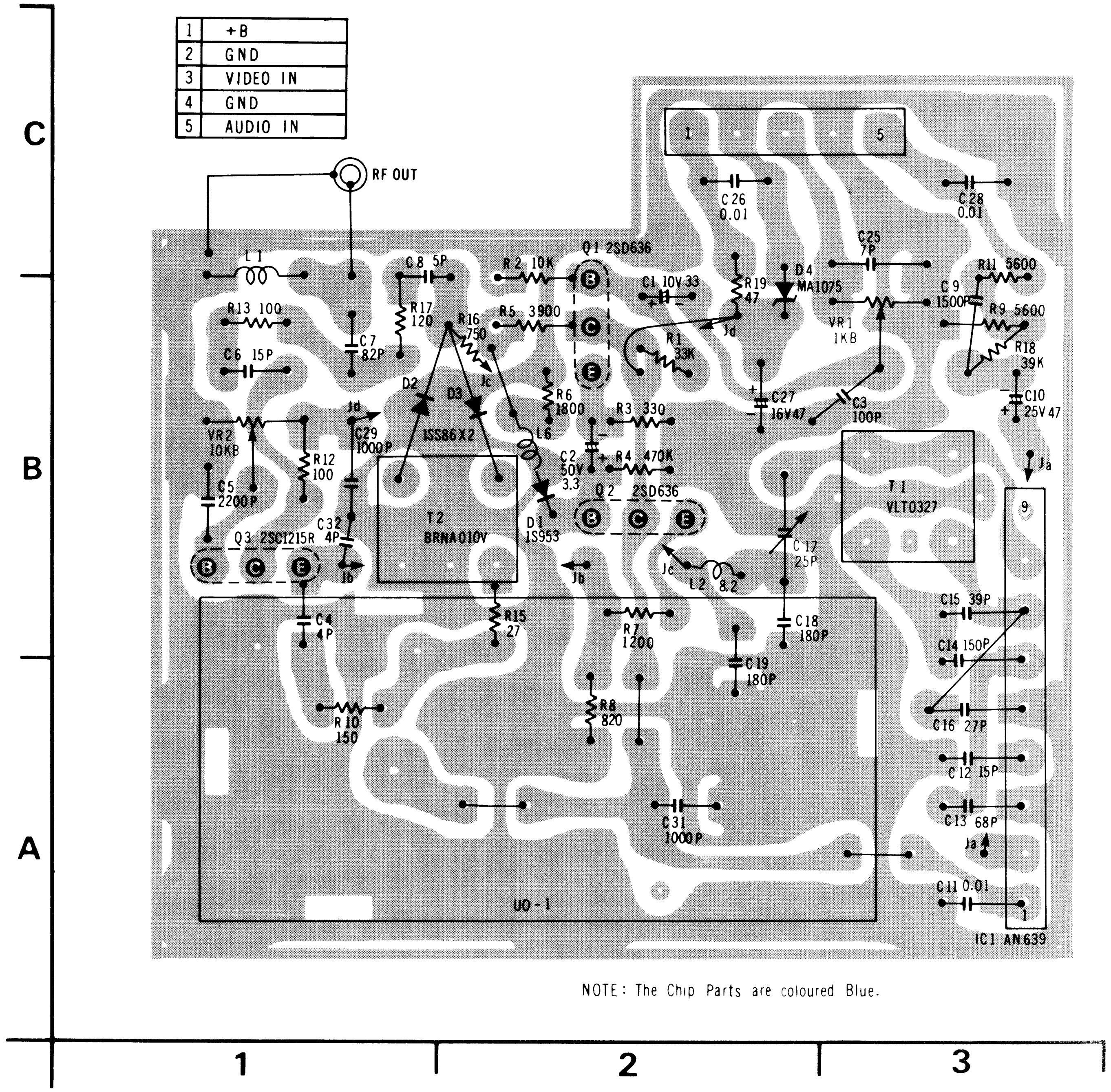

VIDEO IN 3
+B 1
AUDIO IN 5
GND 2
GND 4
VR1 1KB
C1 10V33
R1 33K
R2 10K
C3 100P
C25 7P
R19 56
C26 0.01
D4 MA1075
C27 16V47
Q1 2SD636
C2 50V33
R3 330
R4 470K
R5 3900
L6
D1 1S593
R6 1800
Q2 2SD636
R7 1200
R8 820
C32 4P
C4 4P
R10 150
Q3 2SC1215R
C5 2200P
R12 100
C29 1000P
VR2 10KB
C6 15P
R13 100
C7 82P
RF OUT
L1
R17 120
C8 5P
T2
D2 1SS86
D3 1SS86
R15 27 (10~56)
C31 1000P
R16 750
L2 8.2μ
C19 220P
IC1 AN6395
1
2
3
4
5
6
7
8
9
C17 ~25P
C18 220P
R11 4700
R18 39K
C9 1500P
C10 25V4.7
C28 0.01
R9 5600
C11 0.01
C12 15P
C13 68P
C14 150P
C15 47P
C16 27P
T1 VLT0327
C22 14P
C30 1P
L5
L3
Q4 2SC1215R
L4
C33 0.2P
R20 8200
R21 8200
C21 330P
R22 390
C23 4P
C24 ~7P
UO-1
C
B
A
1
2
3
4
5

RF CONVERTER UNIT [ENC17553; NV-100E/EG]


C
B
A
1
2
3
1 +B
2 GND
3 VIDEO IN
4 GND
5 AUDIO IN
RF OUT
L1
R13 100
C6 15P
C7 82P
C8 5P
R17 120
R16 750
R2 10K
R5 3900
Q1 2SD636
B
C
E
C1 10V33
R19 47
D4 MA1075
C26 0.01
C25 7P
C28 0.01
C9 1500P
R11 00
R9 5600
R18 39K
C10 25V47
VR1 1KB
R1 33K
Jd
C27 16V47
C3 100P
D2
D3
1SS86X2
Jc
R6 1800
R3 330
L6
C2 50V 3.3
R4 470K
Q2 2SD636
D1 1S953
VR2 10KB
R12 100
C5 2200P
C29 1000P
C32 4P
Q3 2SC1215R
Jb
T2 BRNA010V
T1 VLT0327
L2 8.2
C17 25P
Ja
9
C15 P
C14 150P
C18 0P
C19 0P
R15 27
R7 1200
R8 820
C4 4P
R10 150
C16 27P
C12 15P
C13 68P
C31 1000P
C11 0.01
UO-1
1
5
IC1 AN639

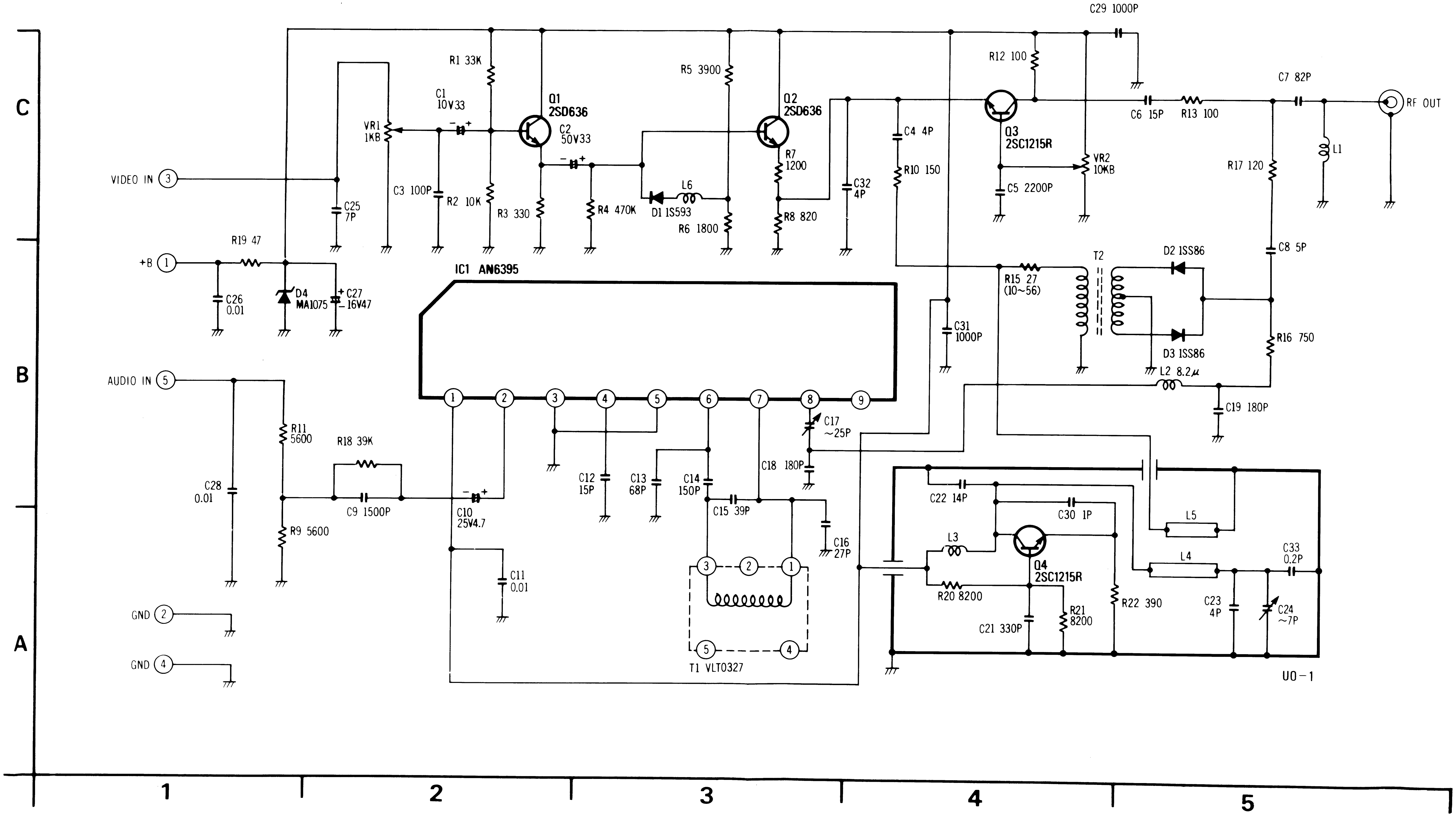
NOTE: The Chip Parts are coloured Blue.

RF CONVERTER UNIT [ENC17554; NV-100B]

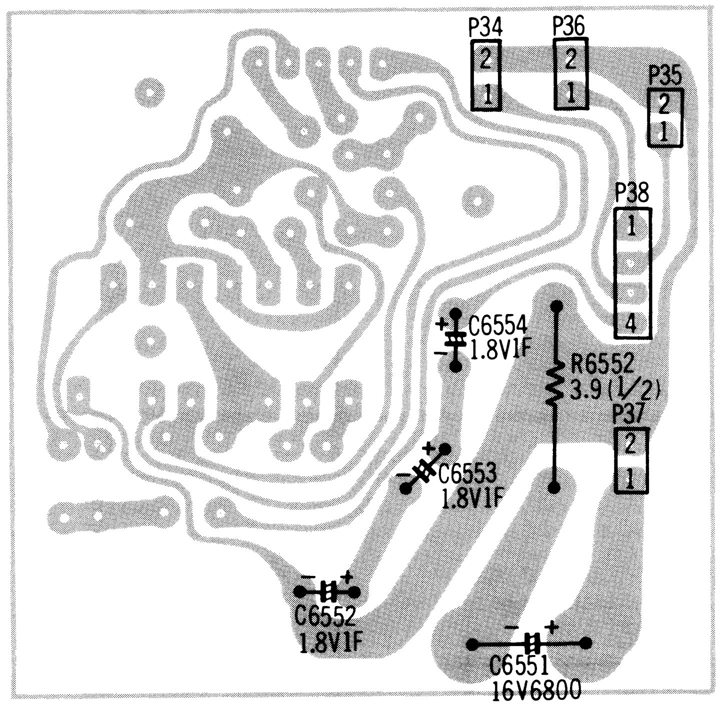

C
B
A
1
2
3
1 +B
2 GND
3 VIDEO IN
4 GND
5 AUDIO IN
RF OUT
L1
R13 100
C6 15P
C7 82P
C8 5P
R17 120
R16 750
R2 10K
R5 3900
Q1 2SD636
B
C
E
C1 10V33
R19 47
D4 MA1075
C26 0.01
C25 7P
C28 0.01
C9 1500P
R11 5600
R9 5600
R18 39K
C10 25V47
VR1 1KB
R1 33K
Jd
C27 16V47
C3 100P
D2
D3
1SS86X2
Jc
R6 1800
R3 330
L6
C2 50V 3.3
R4 470K
Q2 2SD636
D1 1S953
VR2 10KB
R12 100
C5 2200P
C29 1000P
C32 4P
Q3 2SC1215R
Jb
T2 BRNA010V
T1 VLT0327
L2 8.2
C17 25P
Ja
9
C15 39P
C14 150P
C18 180P
C19 180P
R15 27
R7 1200
R8 820
C4 4P
R10 150
C16 27P
C12 15P
C13 68P
C31 1000P
C11 0.01
UO-1
1
5
IC1 AN639

NOTE: The Chip Parts are coloured Blue.

RF CONVERTER SCHEMATIC DIAGRAM (ENC17554)


C29 1000P
R1 33K
C1 10V33
VR1 1KB
Q1 2SD636
C2 50V33
R5 3900
Q2 2SD636
R7 1200
R12 100
Q3 2SC1215R
C7 82P
RF OUT
C6 15P
R13 100
C4 4P
R10 150
VR2 10KB
C5 2200P
R17 120
L1
VIDEO IN ③
C3 100P
R2 10K
R3 330
R4 470K
D1 1S593
L6
R6 1800
R8 820
C32 4P
C25 7P
R19 47
+B ①
C26 0.01
D4 MA1075
C27 16V47
IC1 AN6395
R15 27 (10~56)
T2
D2 1SS86
D3 1SS86
C8 5P
R16 750
C31 1000P
L2 8.2μ
C19 180P
AUDIO IN ⑤
R11 5600
R18 39K
C28 0.01
C9 1500P
C10 25V4.7
R9 5600
C12 15P
C13 68P
C14 150P
C15 39P
C18 180P
C17 ~25P
C16 27P
C11 0.01
T1 VLT0327
C22 14P
C30 1P
L5
L3
Q4 2SC1215R
L4
C33 0.2P
R20 8200
R21 8200
C21 330P
R22 390
C23 4P
C24 ~7P
UO-1
GND ②
GND ④
C
B
A
1
2
3
4
5

BATTERY BACK UP C.B.A. (VEP06165A)


P34
2
1
P36
2
1
P35
2
1
P38
1
4
C6554
1.8V1F
R6552
3.9(1/2)
P37
2
1
C6553
1.8V1F
C6552
1.8V1F
C6551
16V6800

P34	TO DEW SENSOR
1	DEW SENSOR
2	GND

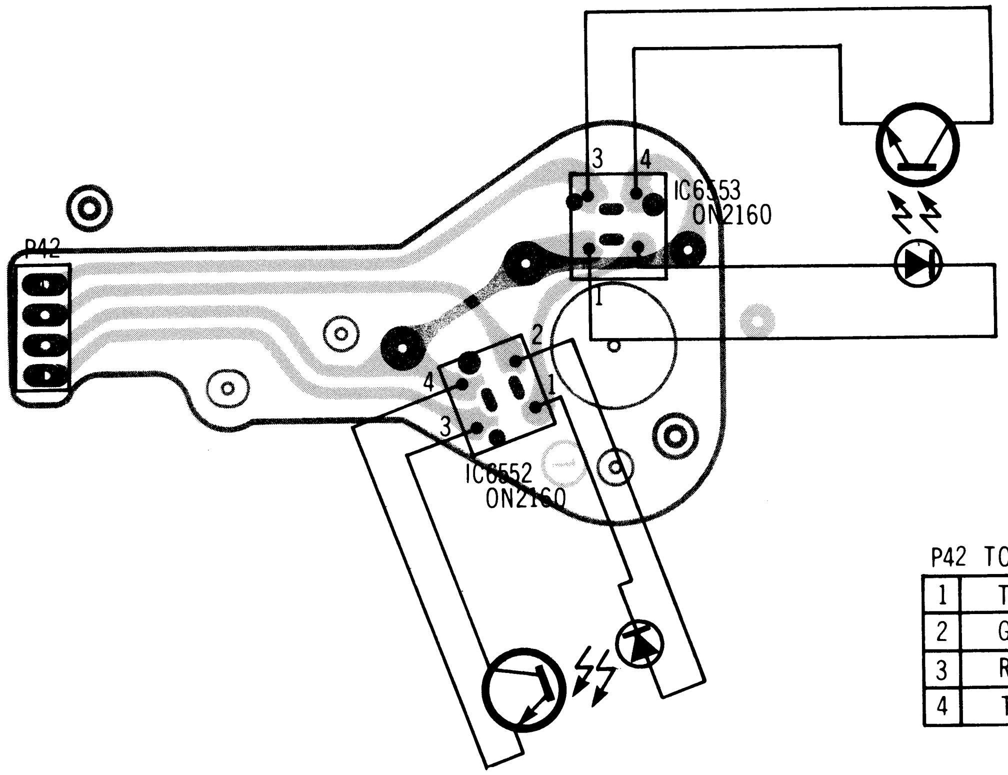
P36	TO TAKE UP SENSOR P40
1	TAKE UP SNS
2	GND

P35	TO TAPE SNS.LED
1	TAPE SNS LED
2	GND

P38	TO P21 SYSTEM CONTROL
1	TAKE UP SNS
2	TAPE SNS.LED
3	DEW SNS
4	MEMORY COUNTER

P37	TO LOAD MOTOR DRIVE P16
1	LOAD BACK UP
2	GND

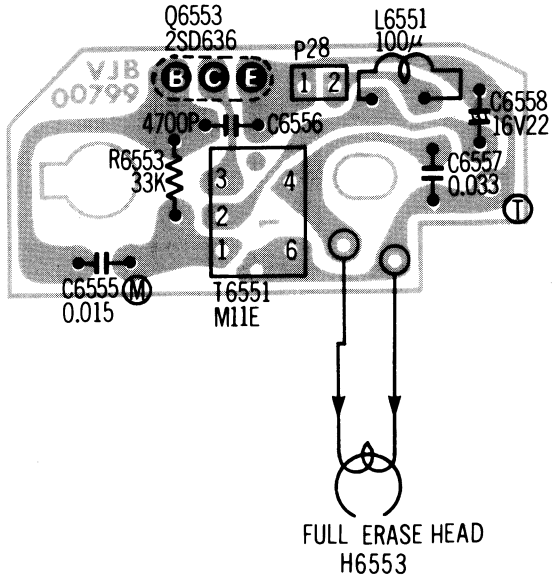
TAKEUP REEL SENSOR C.B. (VJB00801)


P42
3
4
IC6553
ON2160
1
2
4
1
3
IC6552
ON2160

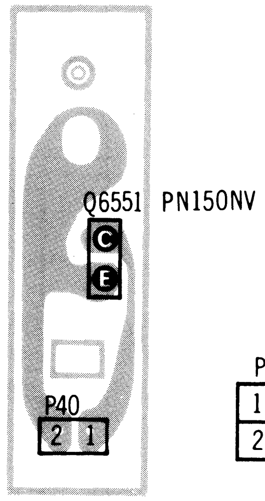
P42	TO P22 SYSTEM CONTROL
1	T1
2	GND
3	REEL SENSER LED
4	T2

FULL ERASE HEAD C.B.A.
(VEP00799A)

P28	TO P7 POWER SUPPLY
1	GND
2	FULL ERASE 9V

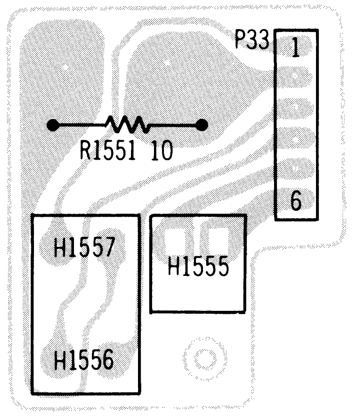

Q6553
2SD636
B
C
E
P28
1
2
L6551
100μ
VJB
00799
4700P
C6556
C6558
16V22
R6553
33K
3
4
2
1
6
C6557
0.033
T
C6555
M
0.015
T6551
M11E
FULL ERASE HEAD
H6553

TAKEUP PHOTO TR C.B. (VJB00796)


Q6551 PN150NV
C
E
P40
2
1

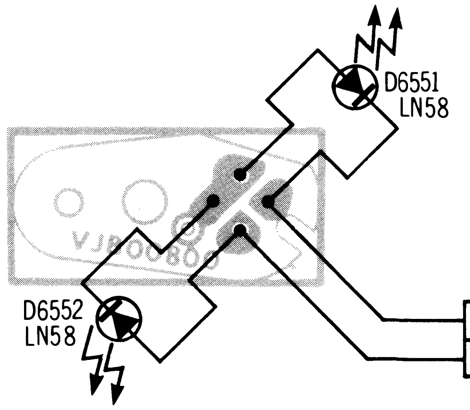
P40	(TO P36)
1	TAKE UP PHOTO TR
2	GND

A/C, AE HEAD C.B. (VJB00798)


P33
1
6
R1551 10
H1557
H1555
H1556

P33	TO P10 SERVO & AUDIO
1	AUDIO HEAD(R)
2	AUDIO HEAD(W)
3	GND
4	CTL HEAD
5	GND
6	A.E. HEAD

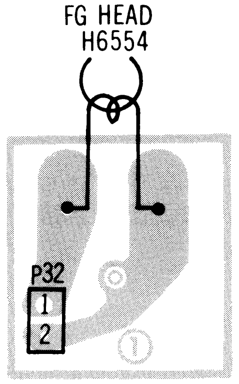
SENSOR LED C.B. (VJB00800)


D6551
LN58
VJB00800
D6552
LN58

P35	(BATTERY BACK UP)
2	GND
1	TAPE SONSOR

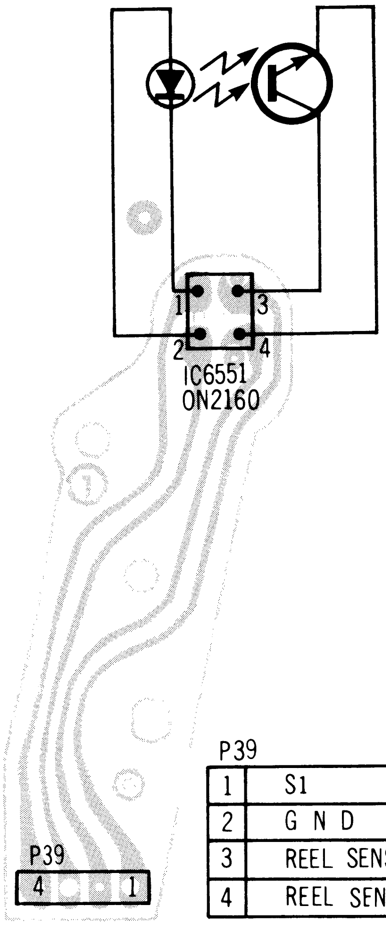
FG HEAD C.B. (VJB00803)

P32	TO P12 SERVO
GND	1
FG	2


FG HEAD
H6554
P32
1
2
1

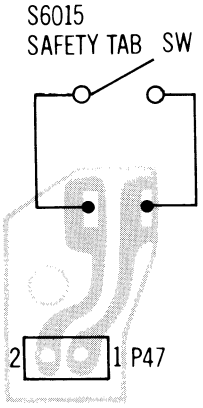
SUPPLY REEL SENSOR C.B. (VJB00802)

SAFETY TAB SW C.B. (VJB00896)


1
3
2
4
IC6551
ON2160
P39
4
1

P39

1	S1	TO P22 SYSTEM CONTROL
2	G N D	
3	REEL SENSOR LED	
4	REEL SENSOR LED	TO TAKE UP REEL SENSOR

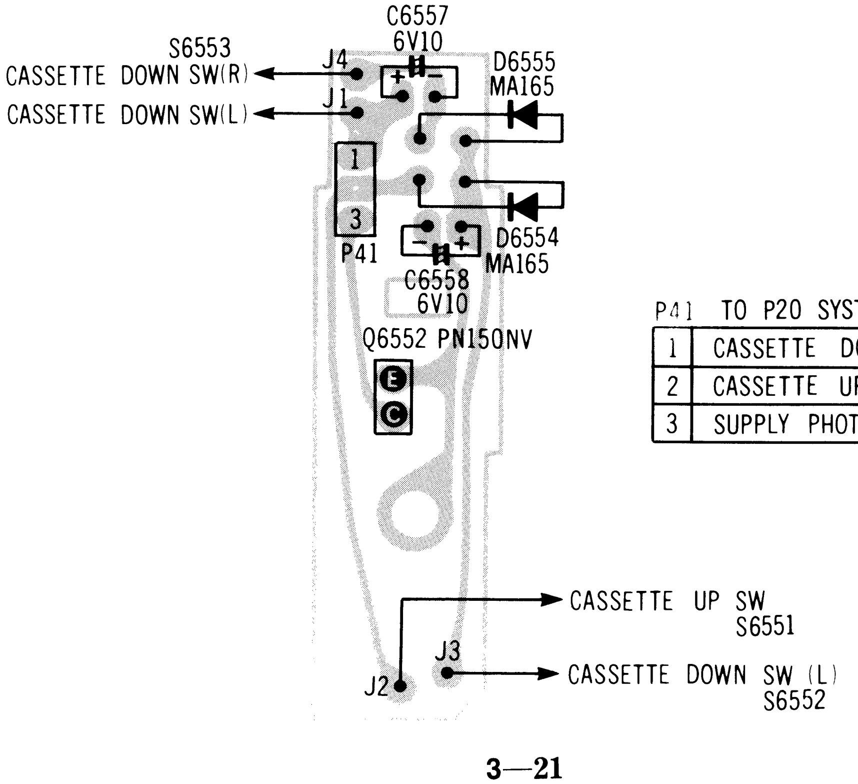

S6015
SAFETY TAB SW
2
1 P47

P47

1	SAFETY TAB ON Ⓛ
2	G N D

TO SYSTEM CONTROL

SUPPLY PHOTO TR C.B. (VJB00901)

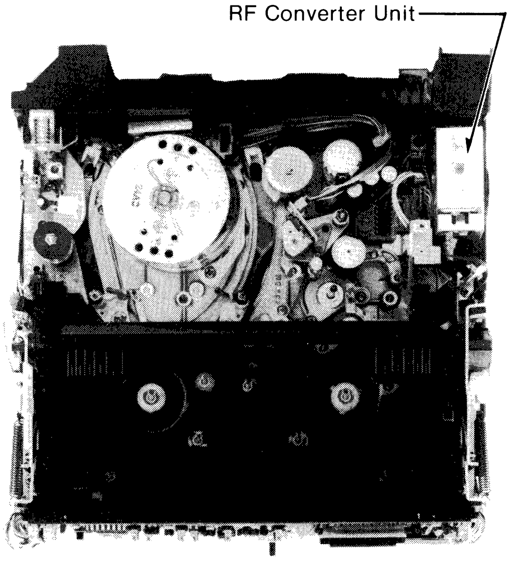

C6557
6V10
S6553
CASSETTE DOWN SW(R)
CASSETTE DOWN SW(L)
J4
J1
D6555
MA165
1
3
P41
D6554
MA165
C6558
6V10
Q6552 PN150NV
E
C
CASSETTE UP SW
S6551
J3
J2
CASSETTE DOWN SW (L)
S6552

P41 TO P20 SYSTEM CONTROL

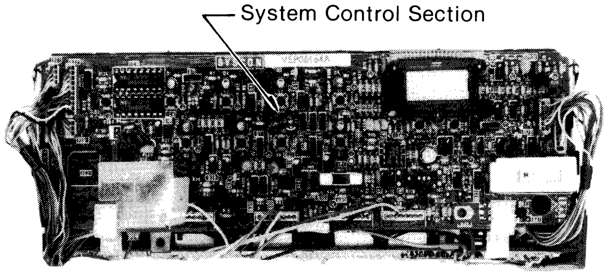
1	CASSETTE DOWN SW
2	CASSETTE UP SW
3	SUPPLY PHOTO TR

CIRCUIT BOARD LAYOUT

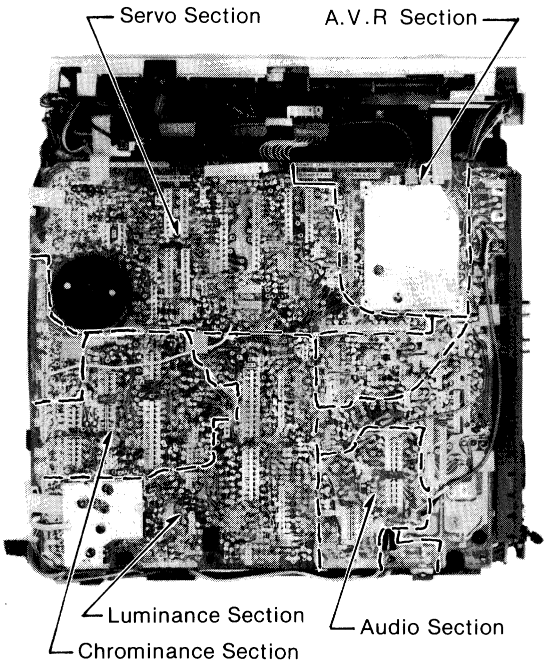
TOP VIEW


RF Converter Unit

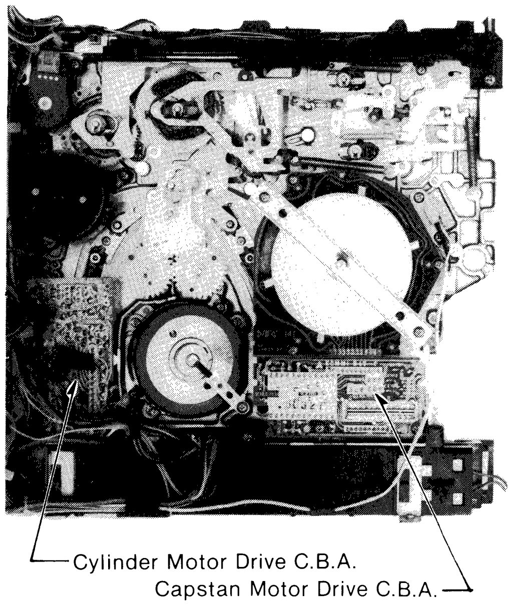
FRONT VIEW


System Control Section

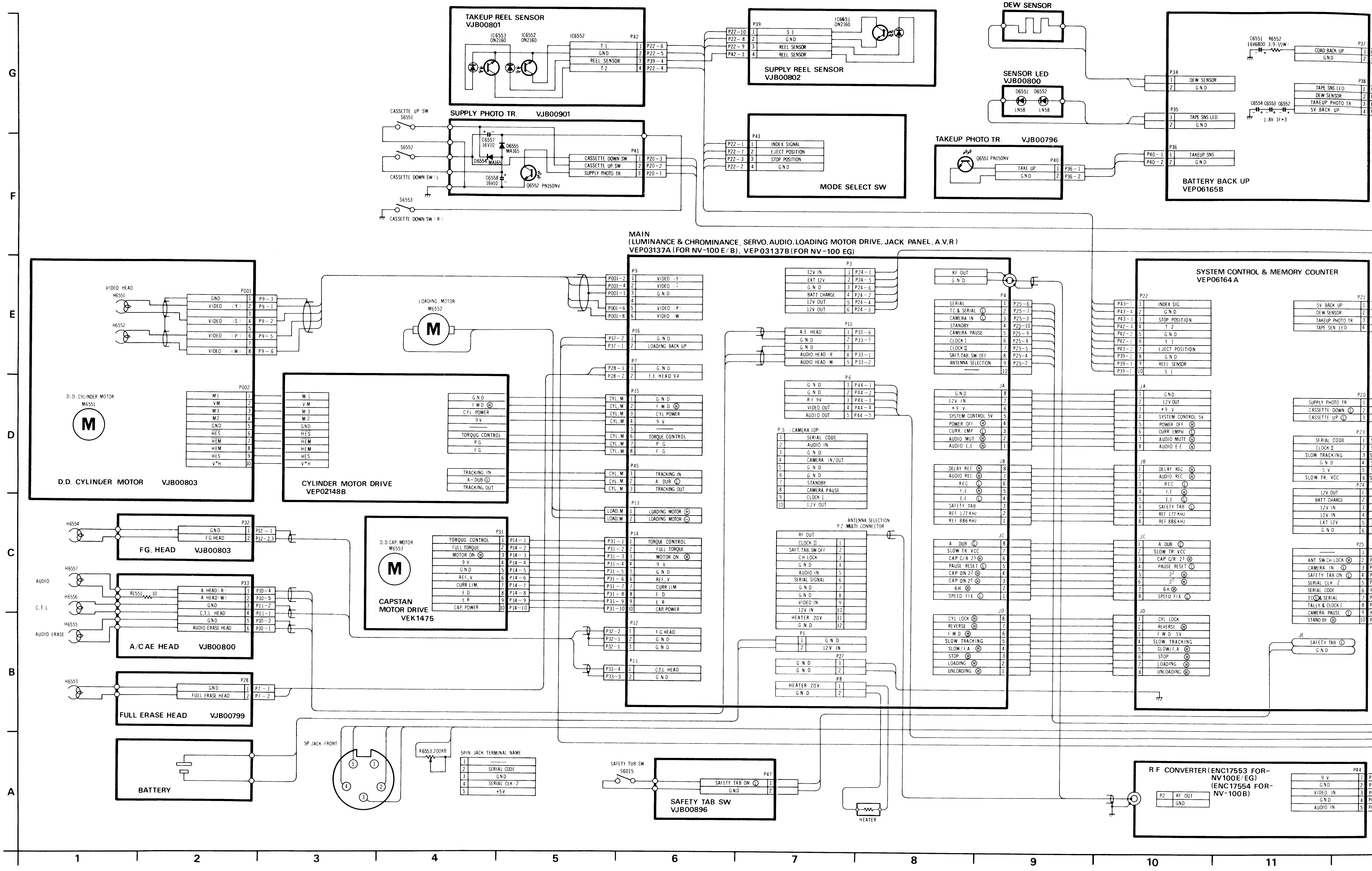
BOTTON VIEW I


Servo Section
A.V.R Section
Luminance Section
Chrominance Section
Audio Section

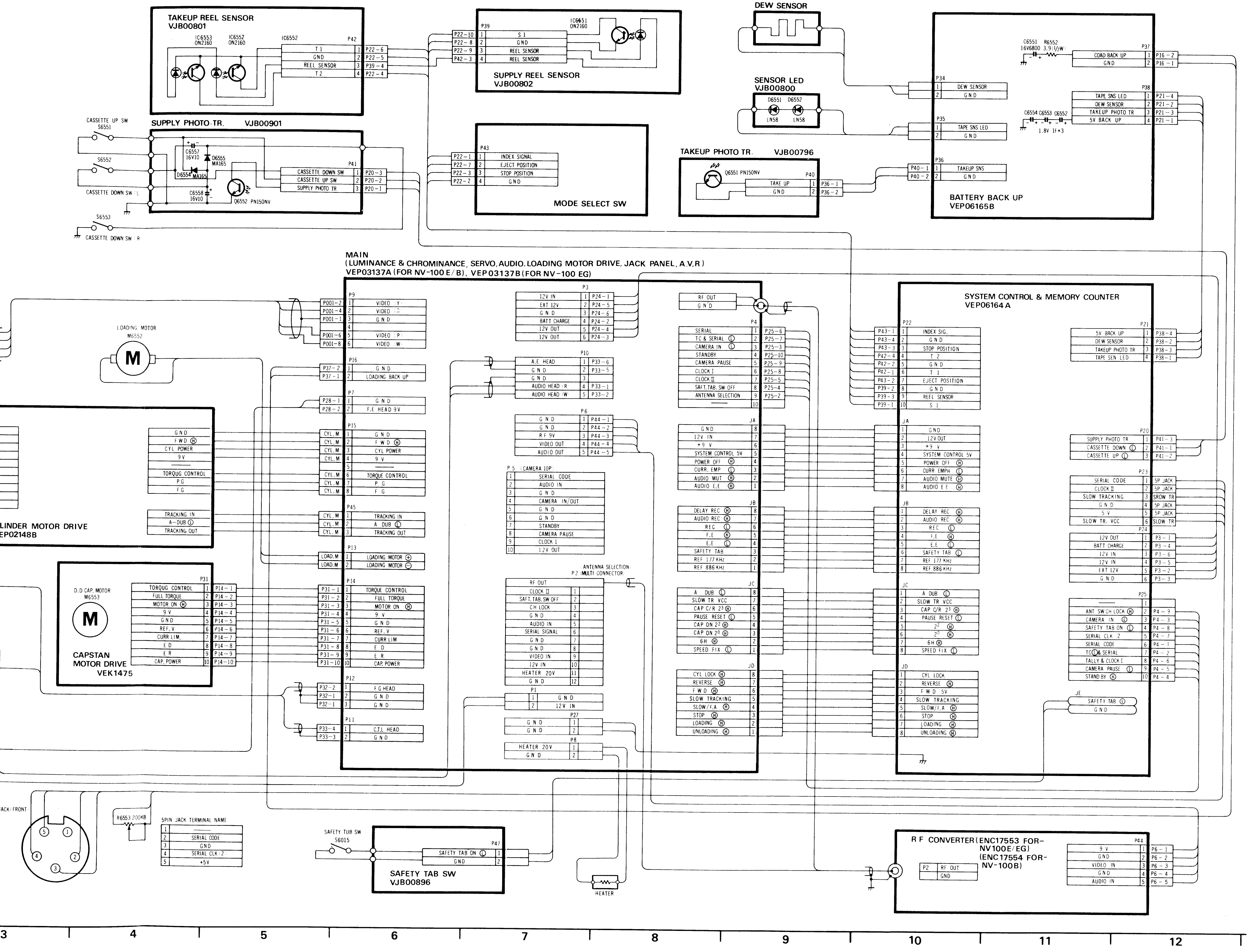
BOTTOM VIEW II


Cylinder Motor Drive C.B.A.
Capstan Motor Drive C.B.A.

INTERCONNECTION SCHEMATIC DIAGRAM


TAKEUP REEL SENSOR
VJB00801
SUPPLY PHOTO TR. VJB00901
CASSETTE UP SW S6551
S6552
CASSETTE DOWN SW (L)
S6553
CASSETTE DOWN SW (R)
SUPPLY REEL SENSOR
VJB00802
MODE SELECT SW
DEW SENSOR
SENSOR LED
VJB00800
TAKEUP PHOTO TR. VJB00796
BATTERY BACK UP
VEP06165B
MAIN
(LUMINANCE & CHROMINANCE, SERVO, AUDIO, LOADING MOTOR DRIVE, JACK PANEL, A.V.R)
VEP03137A (FOR NV-100E/B), VEP03137B (FOR NV-100 EG)
SYSTEM CONTROL & MEMORY COUNTER
VEP06164A
VIDEO HEAD
D.D. CYLINDER MOTOR VJB00803
LOADING MOTOR M6552
CYLINDER MOTOR DRIVE
VEP02148B
FG. HEAD VJB00803
D.D CAP. MOTOR M6553
CAPSTAN MOTOR DRIVE
VEK1475
A/C AE HEAD VJB00800
FULL ERASE HEAD VJB00799
BATTERY
5P JACK (FRONT)
5PIN JACK TERMINAL NAME
SAFETY TAB SW
VJB00896
HEATER
R F CONVERTER (ENC17553 FOR-NV100E/EG) (ENC17554 FOR-NV-100B)
A
B
C
D
E
F
G
1
2
3
4
5
6
7
8
9
10
11

EMATIC DIAGRAM


TAKEUP REEL SENSOR
VJB00801
IC6553 ON2160
IC6552 ON2160
IC6552
P42
T 1
GND
REEL SENSOR
T 2
P22－6
P22－5
P39－4
P22－4
SUPPLY REEL SENSOR
VJB00802
IC6551 ON2160
P39
P22－10
P22－8
P22－9
P42－3
S 1
GND
REEL SENSOR
REEL SENSOR
CASSETTE UP SW S6551
S6552
CASSETTE DOWN SW (L)
S6553
CASSETTE DOWN SW (R)
SUPPLY PHOTO TR. VJB00901
C6557 16V10
D6555 MA165
D6554 MA165
C6558 16V10
Q6552 PN150NV
P41
CASSETTE DOWN SW
CASSETTE UP SW
SUPPLY PHOTO TR
P20－3
P20－2
P20－1
P43
P22－1
P22－7
P22－3
P22－2
INDEX SIGNAL
EJECT POSITION
STOP POSITION
GND
MODE SELECT SW
DEW SENSOR
SENSOR LED
VJB00800
D6551 D6552
LN58 LN58
TAKEUP PHOTO TR. VJB00796
Q6551 PN150NV
P40
TAKE UP
GND
P36－1
P36－2
BATTERY BACK UP
VEP06165B
C6551 16V6800
R6552 3.9(1/2W)
P37
COAD BACK UP
GND
P16－2
P16－1
P34
DEW SENSOR
GND
P35
TAPE SNS LED
GND
P36
P40－1
P40－2
TAKEUP SNS
GND
C6554 C6553 C6552
1.8V 1F×3
P38
TAPE SNS LED
DEW SENSOR
TAKEUP PHOTO TR
5V BACK UP
P21－4
P21－2
P21－3
P21－1
MAIN
(LUMINANCE & CHROMINANCE, SERVO, AUDIO, LOADING MOTOR DRIVE, JACK PANEL, A.V.R)
VEP03137A (FOR NV-100E/B), VEP03137B (FOR NV-100 EG)
P9
P001－2 1 VIDEO (Y)
P001－4 2 VIDEO (C)
P001－1 3 GND
4
P001－6 5 VIDEO (P)
P001－8 6 VIDEO (W)
P16
P37－2 1 GND
P37－1 2 LOADING BACK UP
P7
P28－1 1 GND
P28－2 2 F.E HEAD 9V
P15
CYL.M 1 GND
CYL.M 2 FWD Ⓗ
CYL.M 3 CYL POWER
CYL.M 4 9 V
5
CYL.M 6 TORQUE CONTROL
CYL.M 7 P G
CYL.M 8 F G
P45
CYL.M 1 TRACKING IN
CYL.M 2 A DUB Ⓛ
CYL.M 3 TRACKING OUT
P13
LOAD.M 1 LOADING MOTOR ⊕
LOAD.M 2 LOADING MOTOR ⊖
P14
P31－1 1 TORQUE CONTROL
P31－2 2 FULL TORQUE
P31－3 3 MOTOR ON Ⓗ
P31－4 4 9 V
P31－5 5 GND
P31－6 6 REF. V
P31－7 7 CURR LIM
P31－8 8 E D
P31－9 9 E R
P31－10 10 CAP. POWER
P12
P32－2 1 FG HEAD
P32－1 2 GND
P32－1 3 GND
P11
P33－4 1 C.T.L HEAD
P33－3 2 GND
P3
12V IN 1 P24－1
EXT 12V 2 P24－5
GND 3 P24－6
BATT CHARGE 4 P24－2
12V OUT 5 P24－4
12V OUT 6 P24－3
P10
A.E HEAD 1 P33－6
GND 2 P33－5
GND 3
AUDIO HEAD (R) 4 P33－1
AUDIO HEAD (W) 5 P33－2
P6
GND 1 P44－1
GND 2 P44－2
RF 9V 3 P44－3
VIDEO OUT 4 P44－4
AUDIO OUT 5 P44－5
P5 (CAMERA 10P)
1 SERIAL CODE
2 AUDIO IN
3 GND
4 CAMERA IN/OUT
5 GND
6 GND
7 STANDBY
8 CAMERA PAUSE
9 CLOCK I
10 12V OUT
(ANTENNA SELECTION)
P2 (MULTI CONNECTOR)
RF OUT
CLOCK II 1
SAFT. TAB. SW OFF 2
CH LOCK 3
GND 4
AUDIO IN 5
SERIAL SIGNAL 6
GND 7
GND 8
VIDEO IN 9
12V IN 10
HEATER 20V 11
GND 12
P1
1 GND
2 12V IN
P27
GND 1
GND 2
P8
HEATER 20V 1
GND 2
RF OUT
GND
P4
SERIAL 1 P25－6
TC & SERIAL Ⓛ 2 P25－7
CAMERA IN Ⓛ 3 P25－3
STANDBY 4 P25－10
CAMERA PAUSE 5 P25－9
CLOCK I 6 P25－8
CLOCK II 7 P25－5
SAFT. TAB. SW OFF 8 P25－4
ANTENNA SELECTION 9 P25－2
10
JA
GND 8
12V IN 7
+9 V 6
SYSTEM CONTROL 5V 5
POWER OFF Ⓗ 4
CURR. EMP Ⓛ 3
AUDIO MUT Ⓗ 2
AUDIO E.E Ⓗ 1
JB
DELAY REC Ⓗ 8
AUDIO REC Ⓗ 7
REC Ⓛ 6
F.E Ⓗ 5
E.E Ⓛ 4
SAFETY TAB 3
REF 177 KHz 2
REF 886 KHz 1
JC
A DUB Ⓛ 8
SLOW TR VCC 7
CAP C/R 2³ Ⓗ 6
PAUSE RESET Ⓛ 5
CAP ON 2² Ⓗ 4
CAP ON 2⁰ Ⓗ 3
6H Ⓗ 2
SPEED FIX Ⓛ 1
JD
CYL LOCK Ⓗ 8
REVERSE Ⓗ 7
FWD Ⓗ 6
SLOW TRACKING 5
SLOW/F.A Ⓗ 4
STOP Ⓗ 3
LOADING Ⓗ 2
UNLOADING Ⓗ 1
SYSTEM CONTROL & MEMORY COUNTER
VEP06164A
P22
P43－1 1 INDEX SIG.
P43－4 2 GND
P43－3 3 STOP POSITION
P42－4 4 T 2
P42－2 5 GND
P42－1 6 T 1
P43－2 7 EJECT POSITION
P39－2 8 GND
P39－3 9 REEL SENSOR
P39－1 10 S 1
JA
1 GND
2 12V OUT
3 +9 V
4 SYSTEM CONTROL 5V
5 POWER OFF Ⓗ
6 CURR EMPH Ⓛ
7 AUDIO MUTE Ⓗ
8 AUDIO E.E Ⓗ
JB
1 DELAY REC Ⓗ
2 AUDIO REC Ⓗ
3 REC Ⓛ
4 F.E Ⓗ
5 E.E Ⓛ
6 SAFETY TAB Ⓛ
7 REF 177 KHz
8 REF 886 KHz
JC
1 A DUB Ⓛ
2 SLOW TR VCC
3 CAP C/R 2³ Ⓗ
4 PAUSE RESET Ⓛ
5 2² Ⓗ
6 2⁰ Ⓗ
7 6H Ⓗ
8 SPEED FIX Ⓛ
JD
1 CYL LOCK
2 REVERSE Ⓗ
3 FWD 5V
4 SLOW TRACKING
5 SLOW/F.A Ⓗ
6 STOP Ⓗ
7 LOADING Ⓗ
8 UNLOADING Ⓗ
P21
5V BACK UP 1 P38－4
DEW SENSOR 2 P38－2
TAKEUP PHOTO TR 3 P38－3
TAPE SEN LED 4 P38－1
P20
SUPPLY PHOTO TR 1 P41－3
CASSETTE DOWN Ⓛ 2 P41－1
CASSETTE UP Ⓛ 3 P41－2
P23
SERIAL CODE 1 5P JACK
CLOCK II 2 5P JACK
SLOW TRACKING 3 SROW TR
GND 4 5P JACK
5 V 5 5P JACK
SLOW TR. VCC 6 SLOW TR
P24
12V OUT 1 P3－1
BATT CHARGE 2 P3－4
12V IN 3 P3－6
12V IN 4 P3－5
EXT 12V 5 P3－2
GND 6 P3－3
P25
1
ANT SW CH LOCK Ⓗ 2 P4－9
CAMERA IN Ⓛ 3 P4－3
SAFETY TAB ON Ⓛ 4 P4－8
SERIAL CLK 2 5 P4－7
SERIAL CODE 6 P4－1
TC Ⓛ & SERIAL 7 P4－2
TALLY & CLOCK I 8 P4－6
CAMERA PAUSE Ⓛ 9 P4－5
STAND BY Ⓗ 10 P4－4
JE
SAFETY TAB Ⓛ
GND
LOADING MOTOR
M6552
GND
FWD Ⓗ
CYL POWER
9V
TORQUG CONTROL
PG
FG
TRACKING IN
A-DUB Ⓛ
TRACKING OUT
LINDER MOTOR DRIVE
EP02148B
D.D CAP. MOTOR
M6553
CAPSTAN
MOTOR DRIVE
VEK1475
P31
TORQUG CONTROL 1 P14－1
FULL TORQUE 2 P14－2
MOTOR ON Ⓗ 3 P14－3
9 V 4 P14－4
GND 5 P14－5
REF. V 6 P14－6
CURR LIM. 7 P14－7
E D 8 P14－8
E R 9 P14－9
CAP. POWER 10 P14－10
ACK (FRONT)
R6553 200KB
5PIN JACK TERMINAL NAME
1 ―――
2 SERIAL CODE
3 GND
4 SERIAL CLK (2)
5 +5V
SAFETY TUB SW
S6015
P47
SAFETY TAB ON Ⓛ 1
GND 2
SAFETY TAB SW
VJB00896
HEATER
R F CONVERTER (ENC17553 FOR-NV100E/EG)
(ENC17554 FOR-NV-100B)
P2 RF OUT
GND
P44
9 V 1 P6－1
GND 2 P6－2
VIDEO IN 3 P6－3
GND 4 P6－4
AUDIO IN 5 P6－5
3
4
5
6
7
8
9
10
11
12

Panasonic

MATSUSHITA ELECTRIC

Printed in Japan

ORDER NO. VRD-8206-099

Service Manual

Portable Video Cassette Recorder

Vol. 4

Panasonic VHS

NV-100 -E -B -EG

Exploded Views
Replacement Parts List

SPECIFICATIONS

Power Source: DC 12V
Power Consumption: Approx. 6.7W at Play mode
Video Recording System: 2 rotary heads, helical scanning system
Tape Speed: 23.39mm/s
Tape Format: Tape width 12.7mm high density tape
Record/Playback Time: 240 min. with NV-E240
FF/REW Time: Less than 6.5 min. with NV-E180

VIDEO
- Television System: CCIR: 625 lines, 50 fields PAL colour signal
  (PAL/D.D.R SECAM colour signal: NV-100EG only)
- Modulation System: Luminance: FM azimuth recording
  Colour signal: converted subcarrier phase shift recording
- Input Level: VIDEO IN (BNC): 1.0Vp-p, 75Ω unbalanced
- Output Level: VIDEO OUT (BNC): 1.0Vp-p, 75Ω unbalanced
  RF Modulated: UHF channel 36 (± 4), 75Ω unbananced

AUDIO
- Input Level: MIC IN (M3): −70dB, more than 600Ω unbalanced
  10 pin input, Multi input: −20dB, 2.2kΩ unbalanced
- Output Level: LINE OUT (RCA): −6dB, 600Ω unbalanced
  Earphone: −10dB, 200Ω unbalanced
- Audio Track: 1 track

Video Horizontal Resolution: Colour: more than 240 lines
Signal-to-Noise Ratio: Video: more than 40dB
Audio: more than 43dB
Audio Frequency Response: 80Hz—10kHz
Operating Room Temperature: 0°C—40°C
Operating Humidity: 35%—80%
Weight: 3.8kg (with internal battery pack)
Dimensions: 236(W) x 92(H) x 242(D)mm
Standard Accessories:
- 1 pc. Video Cassette Tape
- 2 pcs. DIN-RF coaxial cable
- 1 pc. Audio Input Attenuator
- 1 pc. Earphone
- 1 pc. Carrying Case

Optional Accessories:
- Video cassette tape:
  - NV-E240 Approx. 344m, 240 min.
  - NV-E180 Approx. 258m, 180 min.
  - NV-E120 Approx. 174m, 120 min.
  - NV-E90 Approx. 130m, 90 min.
  - NV-E60 Approx. 88m, 60 min.
  - NV-E30 Approx. 45m, 30 min.
- Battery Pack, LCS2012E
- Video Tuner/Timer Adaptor, NV-V10
- AC Adaptor, NV-B11
- Wireless Remote Controller, NV-A17
- Wired Remote Controller, NV-A13
- Car Battery Cord, NV-C12
- Video Camera
- Microphone

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

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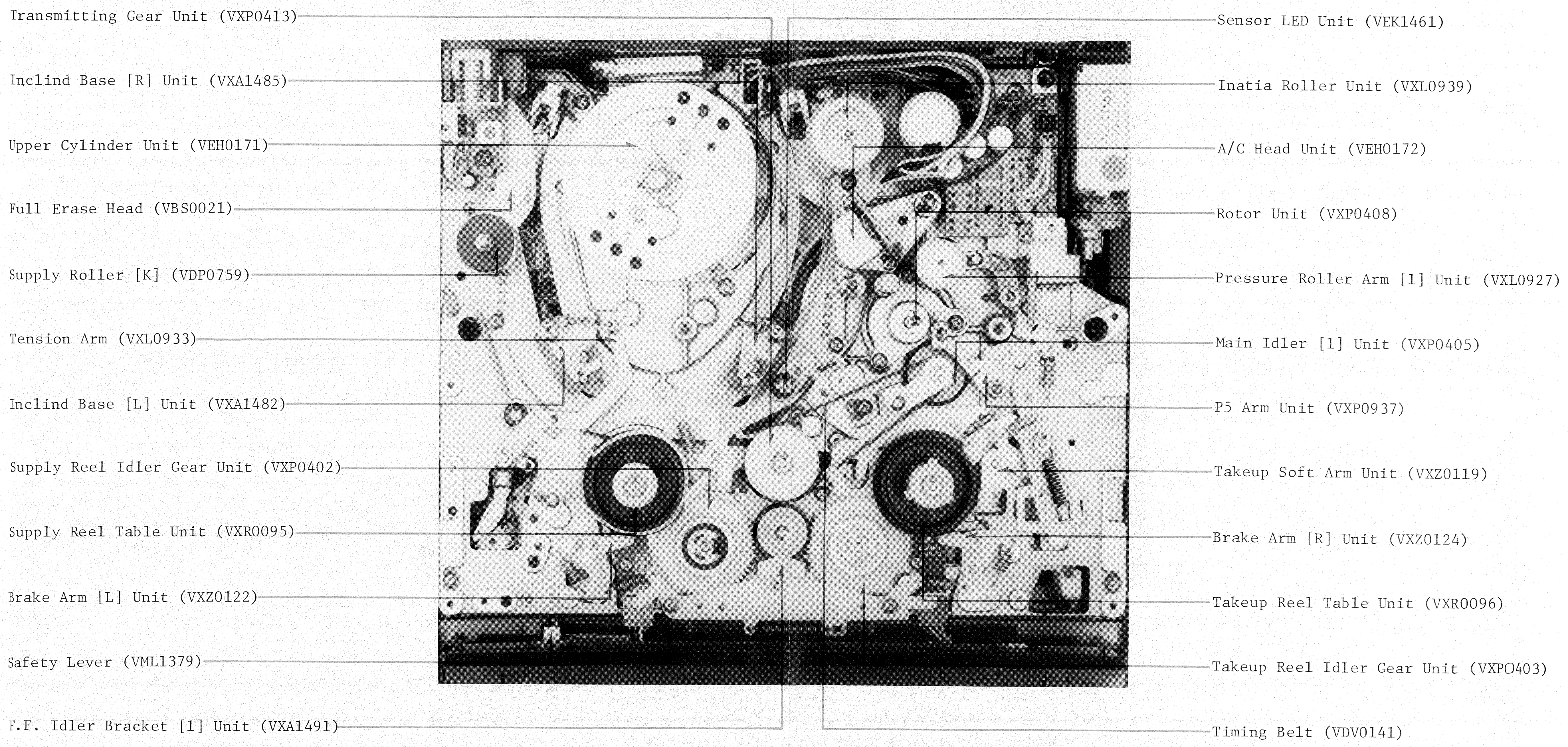
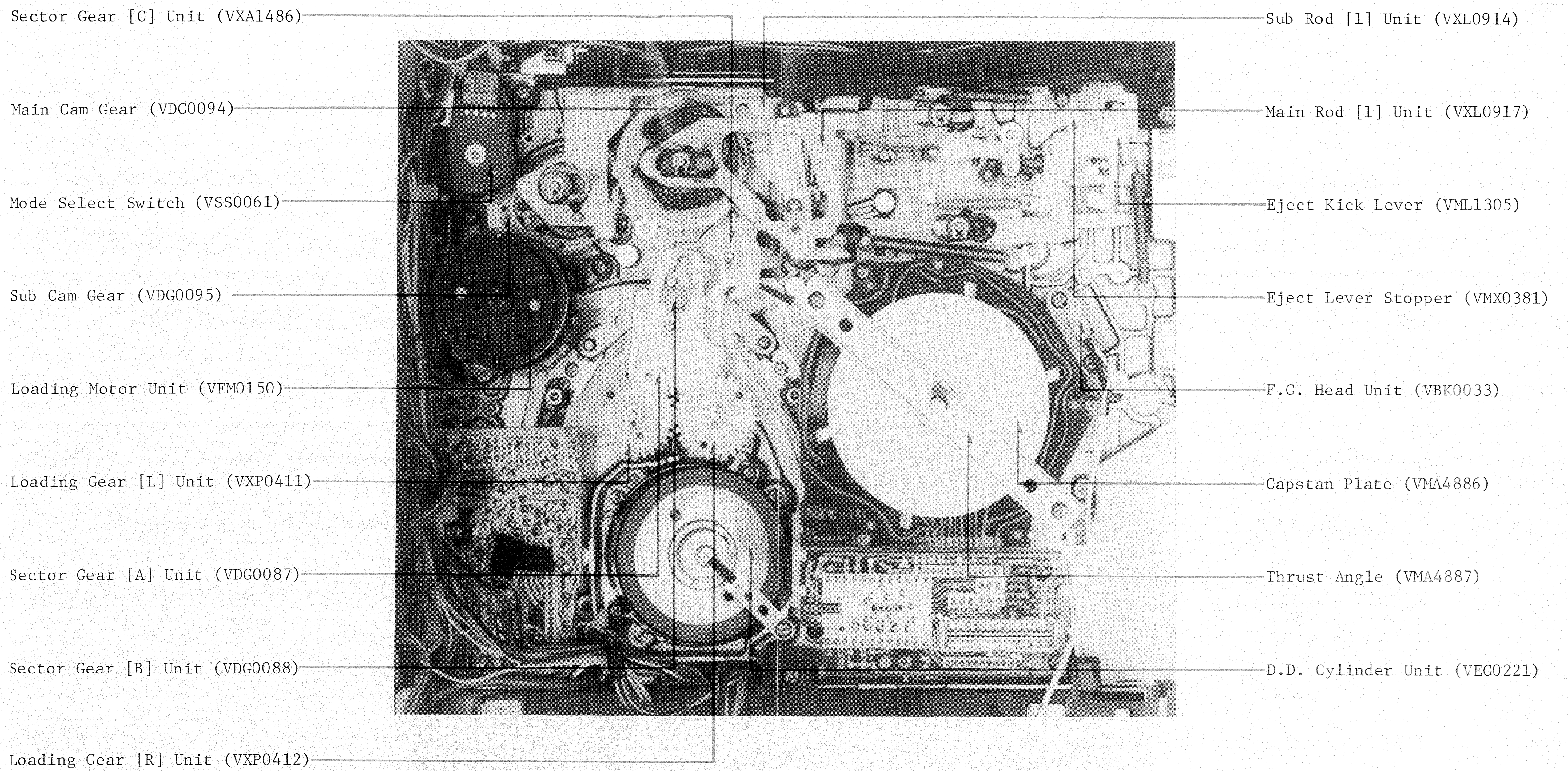
INNER PARTS LOCATION

TOP VIEW


Transmitting Gear Unit (VXP0413)
Inclind Base [R] Unit (VXA1485)
Upper Cylinder Unit (VEH0171)
Full Erase Head (VBS0021)
Supply Roller [K] (VDP0759)
Tension Arm (VXL0933)
Inclind Base [L] Unit (VXA1482)
Supply Reel Idler Gear Unit (VXP0402)
Supply Reel Table Unit (VXR0095)
Brake Arm [L] Unit (VXZ0122)
Safety Lever (VML1379)
F.F. Idler Bracket [1] Unit (VXA1491)
Sensor LED Unit (VEK1461)
Inatia Roller Unit (VXL0939)
A/C Head Unit (VEH0172)
Rotor Unit (VXP0408)
Pressure Roller Arm [1] Unit (VXL0927)
Main Idler [1] Unit (VXP0405)
P5 Arm Unit (VXP0937)
Takeup Soft Arm Unit (VXZ0119)
Brake Arm [R] Unit (VXZ0124)
Takeup Reel Table Unit (VXR0096)
Takeup Reel Idler Gear Unit (VXPO403)
Timing Belt (VDV0141)

BOTTOM VIEW

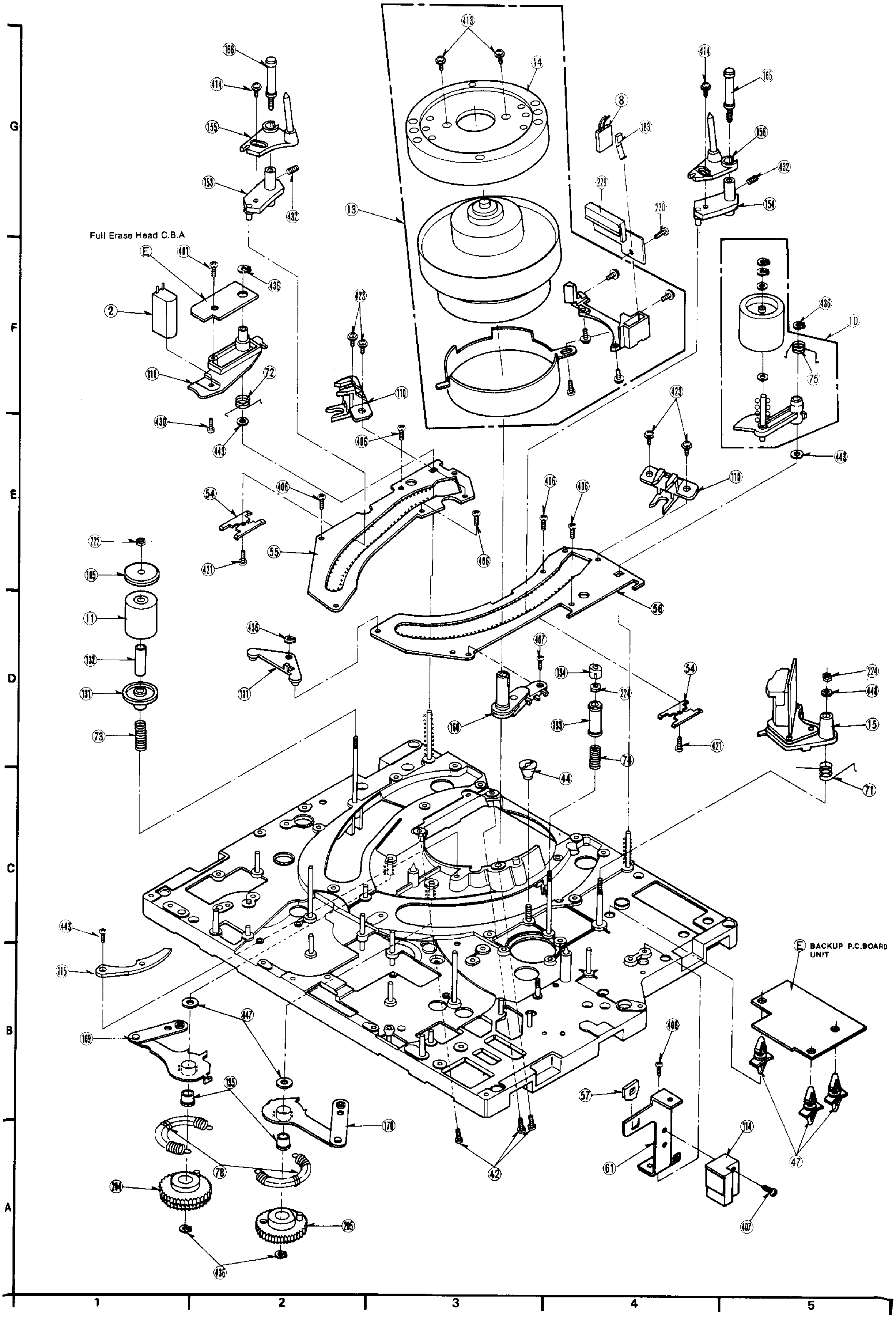

Sector Gear [C] Unit (VXA1486)
Main Cam Gear (VDG0094)
Mode Select Switch (VSS0061)
Sub Cam Gear (VDG0095)
Loading Motor Unit (VEM0150)
Loading Gear [L] Unit (VXP0411)
Sector Gear [A] Unit (VDG0087)
Sector Gear [B] Unit (VDG0088)
Loading Gear [R] Unit (VXP0412)
Sub Rod [1] Unit (VXL0914)
Main Rod [1] Unit (VXL0917)
Eject Kick Lever (VML1305)
Eject Lever Stopper (VMX0381)
F.G. Head Unit (VBK0033)
Capstan Plate (VMA4886)
Thrust Angle (VMA4887)
D.D. Cylinder Unit (VEG0221)

LUBRICATION POINTS

When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

Marks	Kind of Lubricant	Availability	Part Number
×××	Morlytone Grease	Available From Factory	MOR265
○○○	Spindle Oil	Purchase From Local Supplier	......
△△△	Gummed Adhesive	Purchase From Local Supplier	......

EXPLODED VIEWS ❶ *Transport Section*


413
14
166
414
8
183
414
165
155
156
153
432
229
230
432
154
13
Full Erase Head C.B.A
E
401
436
2
423
436
10
116
72
110
75
430
406
423
443
443
54
406
406
406
118
222
55
421
406
105
56
11
436
407
132
111
134
224
224
446
131
54
15
160
133
421
73
74
44
71
443
115
E BACKUP P.C.BOARD UNIT
169
447
406
195
57
170
114
78
61
42
47
204
205
407
436
G
F
E
D
C
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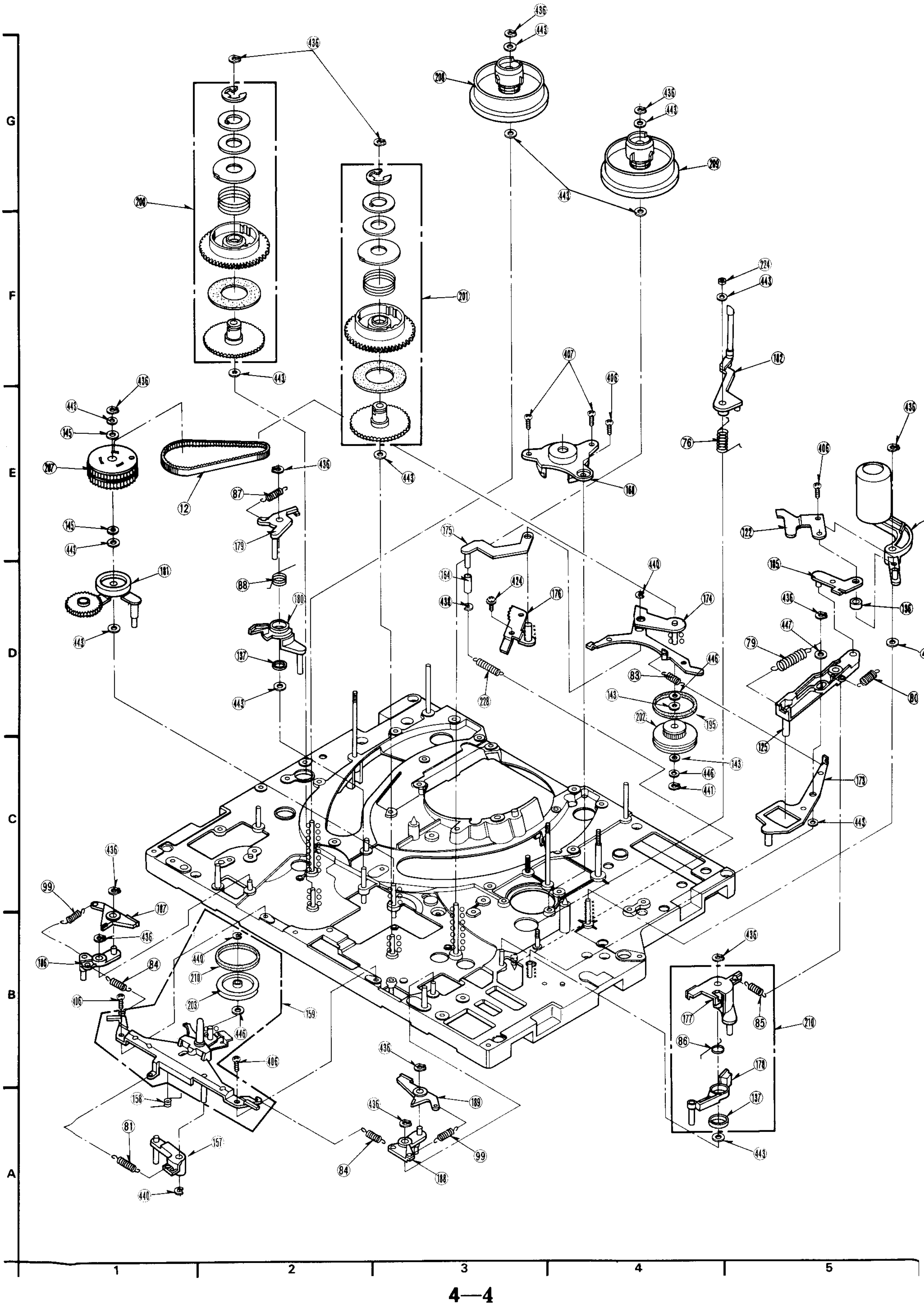
5

❷ *Moving Mechanism Section-(1)*



436
443
436
208
436
443
209
443
200
201
224
443
182
407
406
443
436
443
145
207
12
436
87
443
76
160
436
406
184
179
145
443
175
122
181
88
440
185
164
424
176
174
438
180
436
136
443
447
79
137
446
83
80
228
443
143
195
202
125
143
446
441
173
443
436
99
187
436
440
186
84
210
203
406
159
446
406
436
85
177
210
86
178
436
189
158
137
81
157
84
99
443
188
440
G
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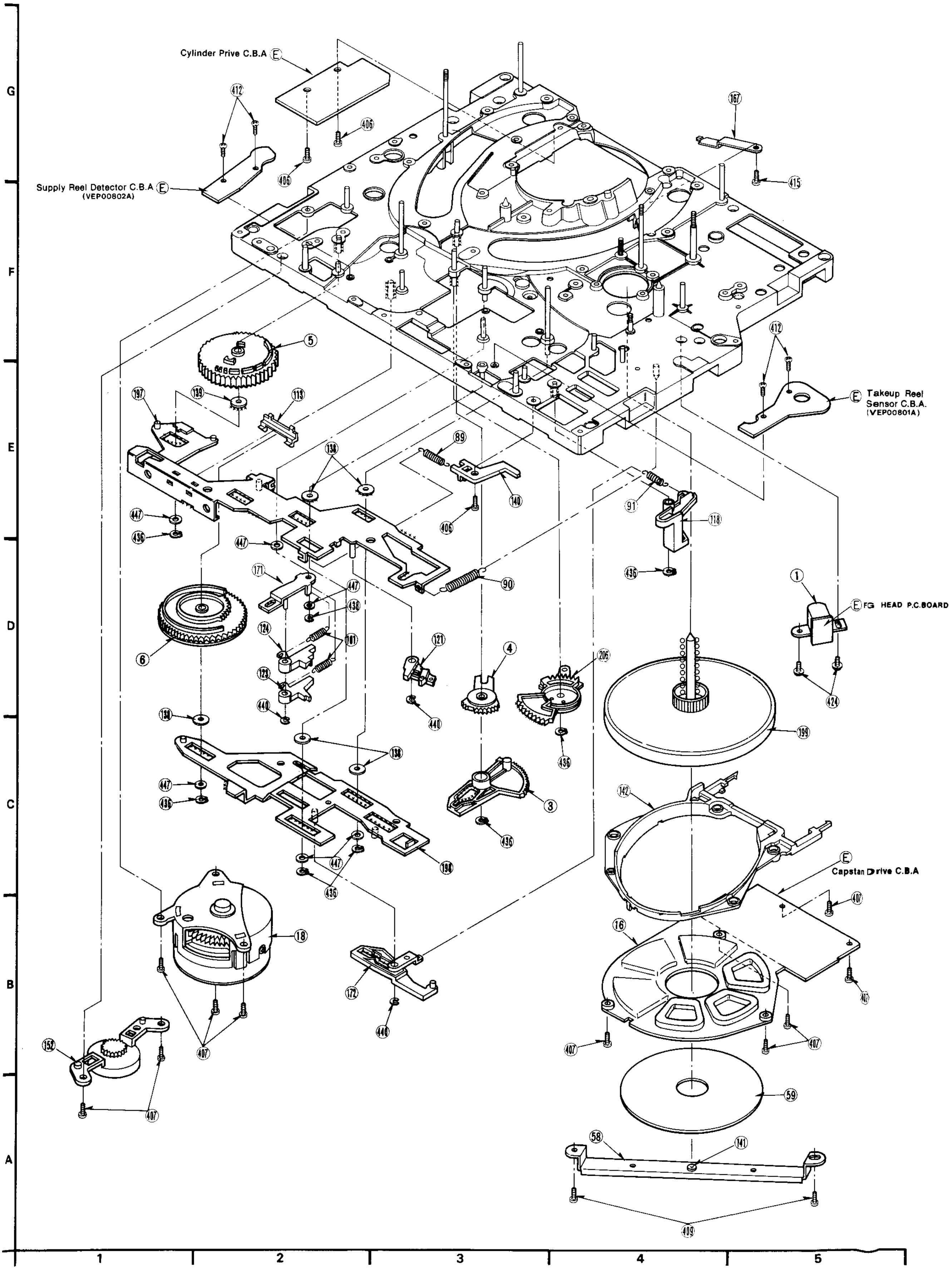
❸ *Moving Mechanism Section-(2)*


Cylinder Prive C.B.A Ⓔ
412
406
406
Supply Reel Detector C.B.A Ⓔ
(VEP00802A)
167
415
5
412
Takeup Reel Sensor C.B.A. Ⓔ
(VEP00801A)
197
139
113
138
89
140
406
447
436
447
91
118
436
90
171
447
438
124
101
121
4
206
1
Ⓔ FG HEAD P.C.BOARD
6
123
440
440
424
138
138
436
199
447
436
3
142
447
436
436
198
Ⓔ
Capstan Drive C.B.A
407
18
16
172
407
440
407
407
152
407
407
59
58
141
409
G
F
E
D
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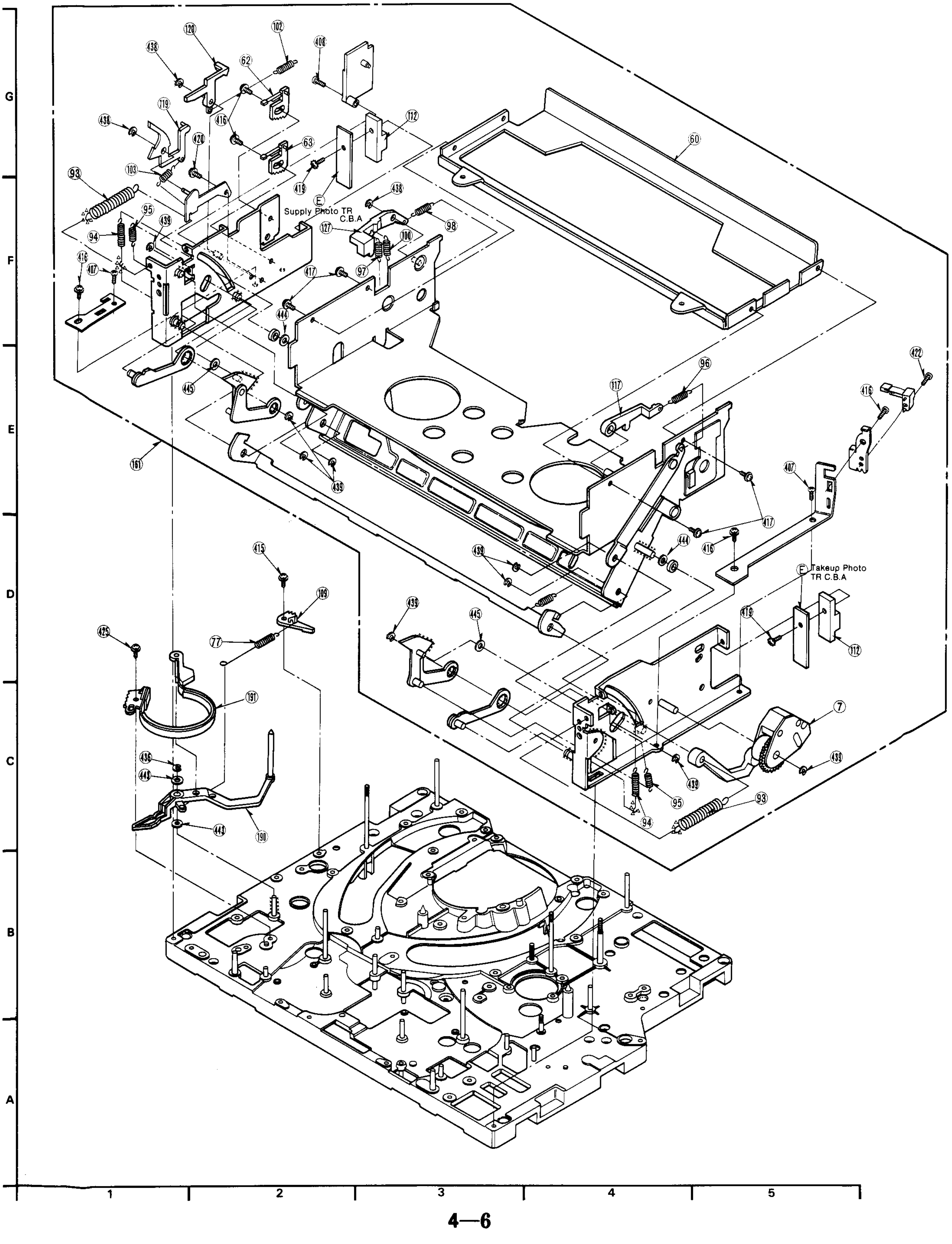
❹ *Chassis Frame Section-(1)*


120
102
408
438
62
119
438
416
112
420
63
60
103
93
419
E
Supply Photo TR C.B.A
438
98
95
439
127
100
94
416
407
417
97
444
445
96
117
422
416
161
439
407
417
444
416
439
E
Takeup Photo TR C.B.A
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109
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445
419
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436
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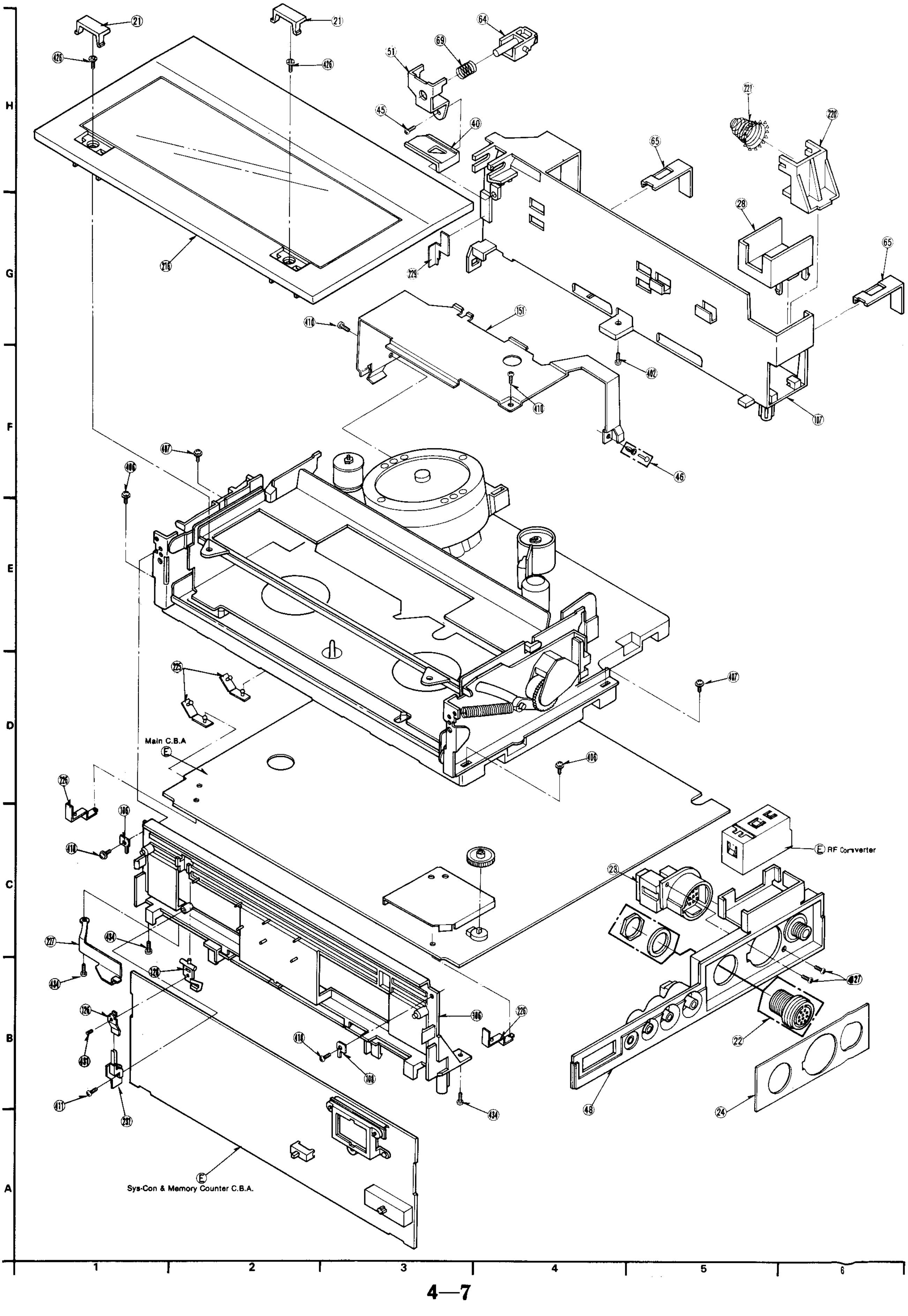
❺ *Chassis Frame Section-(2)*



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426
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221
220
65
28
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229
216
410
151
402
410
107
46
407
406
407
225
406
Main C.B.A
Ⓔ
226
106
416
Ⓔ RF Converter
23
227
434
434
126
126
481
411
231
416
108
106
226
427
22
48
24
Ⓔ
Sys-Con & Memory Counter C.B.A.
H
G
F
E
D
C
B
A
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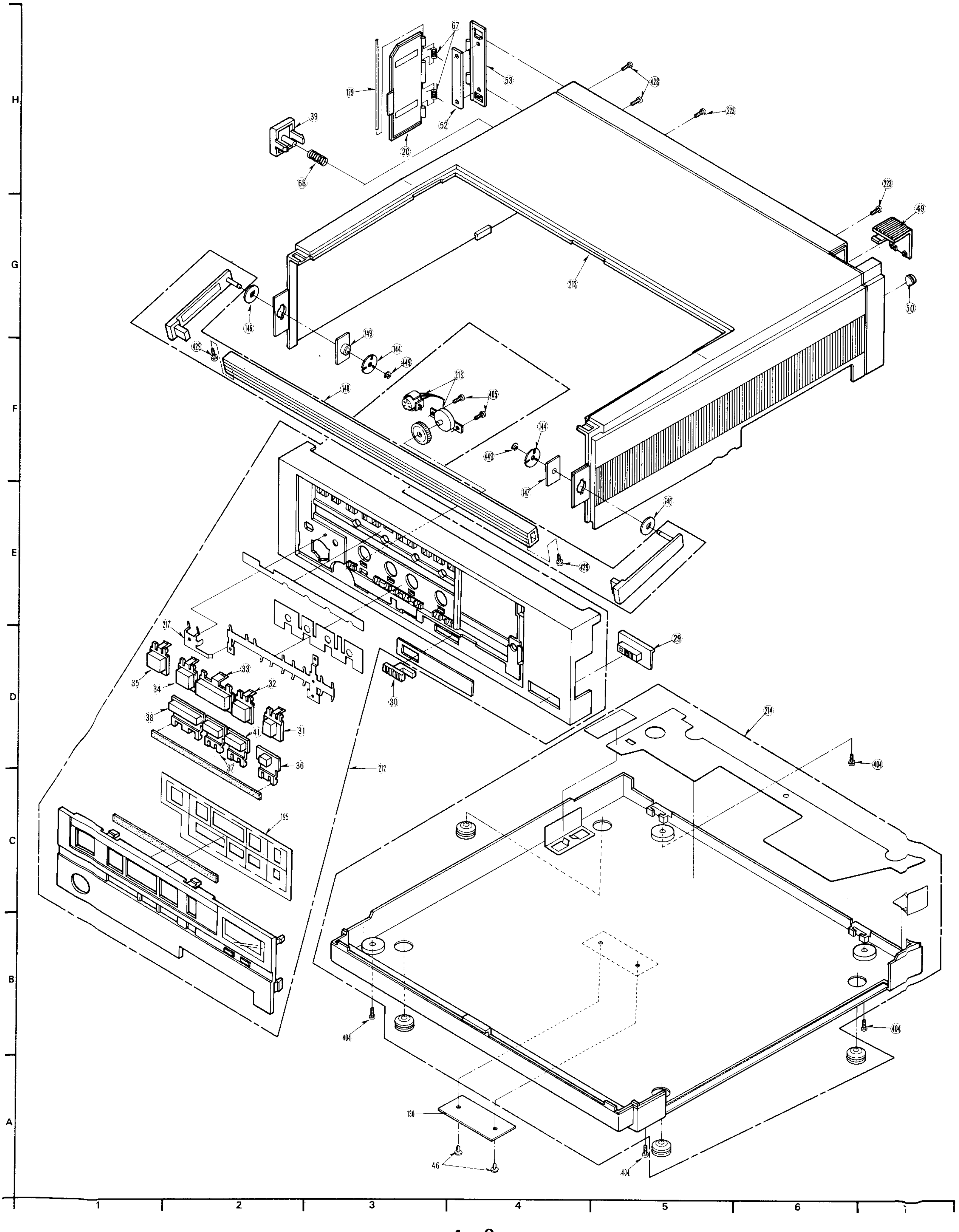
6

⑥ *Casing Parts Section*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129
53
428
39
52
223
20
68
223
49
213
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146
149
144
449
429
218
148
405
144
449
147
146
429
217
29
33
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214
38
41
31
37
36
212
404
195
404
404
130
46
404
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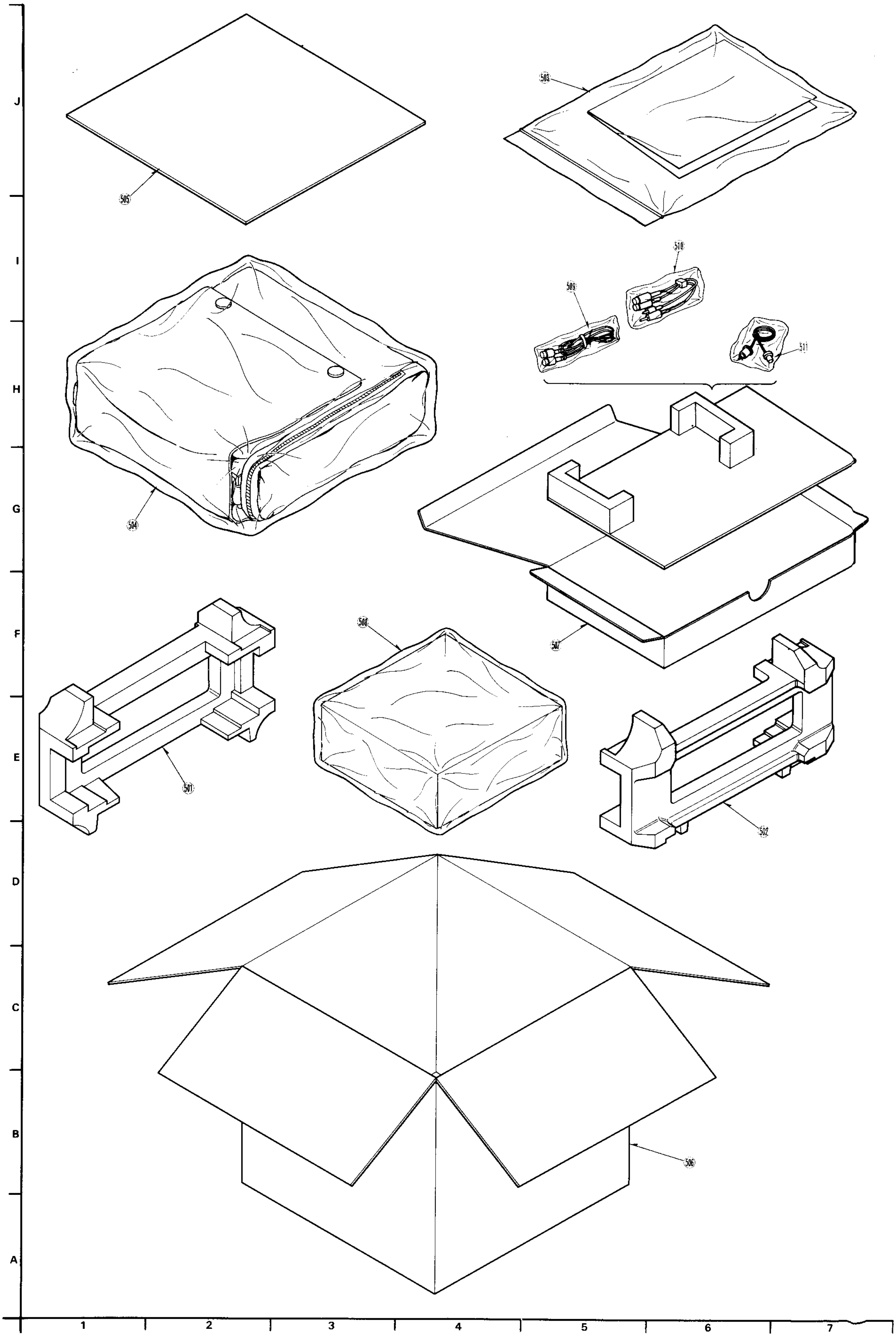
7 *Packing Parts & Accessories Section*



505
503
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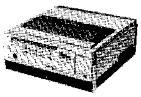
MECHANICAL REPLACEMENT PARTS LIST

Model No. NV-100E/B/EG



Notes:
1. * Be sure to make your orders of replacement parts according to this list.
   * "●" in Remarks column indicates new parts.

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
1(3)		VBK0033	FG HEAD UNIT	1	
2(1)		VBS0021	FE HEAD	1	
3(3)		VDG0087	SECTOR GEAR (A)	1	
4(3)		VDG0088	SECTOR GEAR (B)	1	
5(3)		VDG0095	SUB CAM GEAR	1	
6(3)		VDG0094	MAIN CAM GEAR	1	
7(4)		VDG0098	DAMPER UNIT	1	
8(1)		VRH0009	HEATER UNIT	1	
10(1)		VXL0939	INERTIA ROLLER UNIT	1	
11(1)		VDP0759	SUPPLY ROLLER (K)	1	
12(2)		VDV0141	TIMING BELT	1	
13(1)		VEG0221	DD CYLINDER UNIT	1	
14(1)		VEH0171	UPPER CYLINDER UNIT	1	
15(1)		VEH0172	A/C HEAD UNIT	1	
16(3)		VEK1474	CAPSTAN STATOR COIL	1	
			P.C. BOARD UNIT		
18(3)		VEM0150	LOADING MOTOR UNIT	1	
20(6)		VKF0111	BATTERY DOOR	1	
21(5)		VGK1041	CASSETTE SCREW RUBBER	2	
22(5)		VEK1557	CAMERA JACK UNIT	1	
23(5)		VEE0057	MULTIPLE CONNECTOR UNIT	1	
24(5)		VGN1923	JACK PLATE DECORATION	1	
28(5)		VGQ0272	CHANNEL SELECT CASE	1	
29(6)		VGT0271	POWER SWITCH KNOB	1	
30(6)		VGT0272	CAMERA REMOTE SW KNOB	1	
31(6)		VGU0429	OPERATION BUTTON (REC)	1	
32(6)		VGU0430	OPERATION BUTTON (FF/CUE)	1	
33(6)		VGU0431	OPERATION BUTTON (PLAY)	1	
34(6)		VGU0432	OPERATION BUTTON	1	
			(REW/REVIEW)		
35(6)		VGU0433	OPERATION BUTTON (EJECT)	1	
36(6)		VGU0434	OPERATION BUTTON	1	
			(AUDIO DUBBING)		
37(6)		VGU0435	OPERATION BUTTON	1	
			(PAUSE/STILL)		
38(6)		VGU0436	OPERATION BUTTON (STOP)	1	
39(6)		VGU0497	BATTERY EJECT BUTTON	1	
40(5)		VGU0312	STOPPER RELEASE BUTTON	1	
41(6)		VGU0437	OPERATION BUTTON (SLOW)	1	
42(1)		VHD0081	SCREW	3	
43(1)		VHD0075	SCREW	1	
44(1)		VHN0020	ADJUST NUT	1	
45(5)		XTV3+6J	SCREW	1	
46(5,6)		VHN0030	PLASTIC RIVET	3	
47(1)		VJF0109	P.C. BOARD SUPPORT	3	
48(5)		VJH0224	JACK PLATE	1	
49(6)		VKF0110	CONVERTER COVER	1	
50(6)		VMG0220	RUBBER BUSHING	1	
51(5)		VMA4972	STOPPER COVER	1	
52(6)		VMA5799	BATTERY DOOR HOLDER	1	
53(6)		VKC0051	BATTERY DOOR HINGE	1	
54(1)		VMA4833	SHAFT HOLDER PLATE	2	
55(1)		VMA4834	LOADING GUIDE (L)	1	
56(1)		VMA4835	LOADING GUIDE (R)	1	
57(1)		VMA4876	CASSETTE OPENER COVER	1	
58(3)		VMA4887	THRUST ANGLE	1	
59(3)		VMA4886	CAPSTAN PLATE	1	
60(4)		VMA4843	CASSETTE HOLDER (B)	1	
61(1)		VMA4846	CASSETTE OPENER	1	
62(4)		VSH0016	CASSETTE LOCK DETECT SW	1	
63(4)		VSH0018	LEAF SW	1	
64(5)		VGQ0273	BATTERY STOPPER	1	
65(5)		VMA4971	FRAME SUPPORT ANGLE	2	
67(6)		VMB0966	BATTERY DOOR SPRING	2	
68(6)		VMB0967	BATTERY BUTTON SPRING	1	
69(5)		VMB0968	SPRING	1	
71(1)		VMB0930	A/C HEAD SPRING	1	
72(1)		VMB0925	ERASE HEAD LEVER SPRING	1	
73(1)		VMB0934	SUPPLY LIMITER SPRING	1	
74(1)		VMB0936	POST SPRING	1	
75(1)		VMB0926	INERTIA ROLLER SPRING	1	
76(2)		VMB0941	ARM SPRING	1	
77(4)		VMB0933	TENSION ARM SPRING	1	
78(1)		VMB0931	LOADING SPRING	2	
79(2)		VMB0910	SPRING	1	
80(2)		VMB0971	PRESSURE ROLLER RETURN	1	
			SPRING		
81(2)		VMB0922	FF LEVER SPRING	1	
83(2)		VMB0939	MAIN IDLER SPRING	1	
84(2)		VMB0923	BRAKE LEVER SPRING	2	
85(2)		VMB0937	TAKE-UP SOFT ARM SPRING	1	
86(2)		VMB0911	TAKE-UP SOFT BRAKE SPRING	1	
87(2)		VMB0938	SUPPLY SOFT GUIDE SPRING	1	
88(2)		VMB0912	SUPPLY SOFT BRAKE SPRING	1	
89(3)		VMB0919	SUB ROD RETURN SPRING	1	
90(3)		VMB0920	SUB ROD SPRING	1	
91(3)		VMB0918	EJECT LEVER SPRING	1	
93(4)		VMB0929	CASSETTE HOLDER SPRING	2	
94(4)		VMB0927	LOCK ARM SPRING	2	
95(4)		VMB0916	LOCK RELEASE SPRING	2	
96(4)		VMB0914	CASSETTE HOLDING SPRING	1	
97(4)		VMB0915	CASSETTE HOLDER SPRING	1	
			(L)		
98(4)		VMB0917	DISCRIMINATING LEVER	1	
			SPRING		
99(2)		VMB0924	BRAKE ARM SPRING	2	
100(4)		VMB0988	SUB CASSETTE HOLDING	1	
			SPRING		
101(3)		VMB0980	LATCH SPRING	2	
102(4)		VMB0989	CASSETTE UP DETECT SPRING	1	
103(4)		VMB1021	SWITCH DRIVE SPRING	1	
105(1)		VMX0297	INERTIA ROLLER UPPER	1	
			LIMITER		
106(5)		VMZ0371	BARRIER (L)	1	
107(5)		VMD0343	REAR FRAME	1	
108(5)		VMZ0372	BARRIER (R)	1	
109(4)		VMD0334	ADJUST HOOK	1	
110(1)		VMD0331	POST STOPPER	2	
111(1)		VMD0324	LOADING GUIDE SUPPORT	1	
112(4)		VMD0326	TRANSISTOR HOLDER	2	
113(3)		VMD0354	GUIDE BLOCK	1	
114(1)		VEK1445	DEW DETECTOR UNIT	1	
115(1)		VMD0385	INCLIND SUPPORT ANGLE	1	
116(1)		VML1281	ERASE HEAD LEVER	1	
117(4)		VML1303	CASSETTE HOLDING LEVER	1	
118(3)		VML1305	EJECT KICK LEVER	1	
119(4)		VML1385	CASSETTE DOWN SW LEVER	1	
120(4)		VML1299	CASSETTE UP SW LEVER	1	
121(3)		VML1312	MAIN BRAKE KICK LEVER	1	
122(2)		VML1291	KICK LEVER	1	
123(3)		VML1357	LATCHET (A)	1	
124(3)		VML1358	LATCHET (B)	1	
125(2)		VML1289	TOGGLE ARM	1	
126(5)		VMA5914	ADJUST ANGLE	1	
127(4)		VML1304	DISCRIMINATING LEVER	1	
128(5)		VML1379	SAFETY LEVER	1	
129(6)		VMS2135	BATTERY DOOR SHAFT	1	
130(6)		VGN1925	RATED LABEL	1	NV-100E
130(6)		VGN1926	RATED LABEL	1	NV-100EG
130(6)		VGN1927	RATED LABEL	1	NV-100B
131(1)		VMS2094	INERTIA ROLLER LOWER	1	
			LIMITER		
132(1)		VMX0288	COLLAR	1	
133(1)		VMX0404	POST SLEEVE	1	
134(1)		VMX0373	POST CAP	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
135(1)		VMX0375	LOADING ARM SLEEVE	2	
136(2)		VMX0395	SLEEVE	1	
137(2)		VMX0394	SOFT BRAKE STOPPER	2	
138(3)		XWGV3D7G	SLIDE WASHER (A)	6	
139(3)		XWGV3D9G	SLIDE WASEHR (B)	2	
140(3)		VMX0381	EJECT LEVER STOPPER	1	
141(3)		VMX0396	THRUST BOSS	1	
142(3)		VMX0397	STARTER BRACKET	1	
143(2)		VMX0387	IDLER WASHER	2	
144(6)		VGQ0331	HANDLE SPACER	2	
145(2)		VMX0157	WASHER	2	
146(6)		VGQ0328	HANDLE WASHER	2	
147(6)		VMA5906	HANDLE SUPPORT ANGLE (R)	1	
148(6)		VYC0065	HANDLE UNIT	1	
149(6)		VMA5910	HANDLE SUPPORT ANGLE (L)	1	
151(5)		VSC0737	SHIELD CASE (TOP)	1	
152(3)		VSS0061	MODE SELECT SWITCH	1	
153(1)		VXA1481	SHAFT HOLDER L UNIT	1	
154(1)		VXA1484	SHAFT HOLDER R UNIT	1	
155(1)		VXA1482	INCLINED BASE L UNIT	1	
156(1)		VXA1485	INCLINED BASE R UNIT	1	
157(2)		VXL0938	FF IDLER LEVER UNIT	1	
158(2)		VMB0921	ROD SPRING	1	
159(2)		VXA1491	FF IDLER BRACKET 1 UNIT	1	
160(1)		VEK1461	SENSOR LED UNIT	1	
161(4)		VXA1495	CASSETTE UP UNIT	1	
162(5)		XTV3+10F	SCREW	1	
164(2)		VDP0858	ROLLER	1	
165(1)		VXP0302C	ROLLER POST R UNIT	1	
166(1)		VXP0302A	ROLLER POST L UNIT	1	
167(3)		VSA0040	GROUNDING PLATE	1	
168(2)		VXD0068	HOUSING	1	
169(1)		VXL0910	LOADING ARM L-1 UNIT	1	
170(1)		VXL0912	LOADING ARM R-1 UNIT	1	
171(3)		VML0970	RELEASE LINK	1	
172(3)		VXL0918	ARM KICK LEVER UNIT	1	
173(2)		VXL0920	IDLER LEVER UNIT	1	
174(2)		VXL0922	MAIN IDLER LEVER 1 UNIT	1	
175(2)		VXL0923	SUB IDLER LEVER UNIT	1	
176(2)		VXA1487	IDLER SUPPORT UNIT	1	
177(2)		VXZ0119	TAKE-UP SOFT ARM UNIT	1	
178(2)		VXZ0120	TAKE-UP SOFT GUIDE UNIT	1	
179(2)		VXL0935	SUPPLY SOFT ARM UNIT	1	
180(2)		VXL0934	SUPPLY SOFT GUIDE UNIT	1	
181(2)		VXL0936	TRANSMITTING ARM UNIT	1	
182(2)		VXL0937	P5 ARM UNIT	1	
183(1)		VMB0908	HEATER SPRING	1	
184(2)		VXL0927	PRESSURE ROLLER ARM 1 UNIT	1	
185(2)		VXL0929	CONNECTING ARM UNIT	1	
186(2)		VXL0930	BRAKE LEVER L UNIT	1	
187(2)		VXZ0122	BRAKE ARM L UNIT	1	
188(2)		VXL0931	BRAKE LEVER R UNIT	1	
189(2)		VXZ0124	BRAKE ARM R UNIT	1	
190(4)		VXL0933	TENSION ARM	1	
191(4)		VXZ0125	TENSION BAND UNIT	1	
195(2)		VMG0259	IDLER TIRE	1	
197(3)		VXL0914	SUB ROD 1 UNIT	1	
198(3)		VXL0917	MAIN ROD 1 UNIT	1	
199(3)		VXP0408	ROTOR UNIT	1	
200(2)		VXP0402	SUPPLY REEL IDLER GEAR UNIT	1	
201(2)		VXP0403	TAKE-UP REEL IDLER UNIT	1	
202(2)		VXP0405	MAIN IDLER 1 UNIT	1	
203(2)		VDP0854	FF IDLER	1	
204(1)		VXP0411	LOADING GEAR L UNIT	1	
205(1)		VXP0412	LOADING GEAR R UNIT	1	
206(3)		VXA1486	SECTOR GEAR C UNIT	1	
207(2)		VXP0413	TRANSMITTING GEAR UNIT	1	
208(2)		VXR0095	SUPPLY REEL TABLE UNIT	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
209(2)		VXR0096	TAKE-UP REEL TABLE UNIT	1	
210(2)		VMG0258	FF IDLER TIRE	1	
212(6)		VYP0666	FRONT PANEL UNIT	1	
213(6)		VGP0726	TOP CASE	1	
214(6)		VYK0421	BOTTOM CASE UNIT	1	
216(5)		VYK0420	CASSETTE COVER UNIT	1	
217(6)		VEK1756	EARTH ANGLE	1	
218(6)		VEK1856	REMOTE CONNECTOR UNIT	1	
220(5)		VJF0106	BATTERY CATCHER	1	
221(5)		VMB0969	BATTERY CATCHER SPRING	1	
222(1)		VHD0045	NYLON NUT	1	
223(6)		VHD0087	TOP PANEL SCREW	2	
224(1,2)		VHN0023	NYLON NUT	3	
225(5)		VKC0052	HINGE	2	
226(5)		VKC0053	HINGE	2	
227(5)		VEK1769	GROUND ANGLE	1	
228(2)		VMB0940	SUB LEVER SPRING	1	
229(1)		VEK1827	Shield Cover Unit	1	
230(1)		VHD0075	Shield Cover Screw	1	
231(5)		VEK1758	SAFETY TAB SW.	1	
401		XTV3+8J		1	
402		XTV3+10F		1	
403		XTV3+6J		1	
404		XTV3+14FZ		4	
405		XTV2+5J		2	
406		XTV26+6F		16	
407		XTV26+8F		20	
408		XTV26+10F		1	
409		XTV26+12F		2	
410		XTV26+6FRS		2	
411		XTV26+8J		1	
412		XTN26+35F		4	
413		XYN3+B8BNS		2	
414		XYN26+A5		2	
415		XYE26+BF6		2	
416		XYN26+F6		5	
417		XYN26+C6FZ		4	
418		XYN26+F8		2	
419		XYN26+E10		2	
420		XYN26+C6		1	
421		XYN3+C4		2	
422		XYN2+C6		1	
423		XYE26+BF10		4	
424		XYE26+BF5		3	
425		XYE26+BF8		1	
426		XSB3+6FKS		2	
427		XSS26+2		2	
428		XSS2+5FXKS		2	
429		XSS26+8FXKS		2	
430		XSN2+35		1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
431		XXEV0001		1	
432		XXEV2D2FP		2	
433		XTV3+6F		1	
434		XTV3+8F		3	
435		XTS3+12F		1	
436		XUEV3VW		24	
437		XUEV2VW		2	
438		XUC25FP		5	
439		XUC3FP		10	
440		XUC2FP		5	
441		XUC15FP		1	
442		XWGV2D4G		2	
443		XWGV3D6G		15	
444		XWGV4D65		2	
445		XWGV45Y9G		2	
446		XWGV25Y47G		3	
447		XWGV3D7G		8	
448		XWG3		1	
449		XUC4FP		2	
501(7)		VPN0776	CUSHION (L)	1	
502(7)		VPN0777	CUSHION (R)	1	
503(7)		VQF0828	FAN BAG	1	NV-100E
503(7)		VQF0826	FAN BAG	1	NV-100EG
503(7)		VQF0827	FAN BAG	1	NV-100B
504(7)		VFC0015	CARRYING CASE	1	NV-100E/B
504(7)		VFC0014	CARRYING CASE	1	NV-100EG
505(7)		VPN0789	UPPER CUSHION	1	
506(7)		VPG1144	PACKING CASE	1	NV-100E
506(7)		VPG1142	PACKING CASE	1	NV-100EG
506(7)		VPG1143	PACKING CASE	1	NV-100B
507(7)		VPN0778	ACCESSORY CASE	1	
508(7)		VPF0164	POLYETHYLENE BAG	1	
509(7)		VJA0130	DIN-RF CABLE	1	
510(7)		VJP1164	MIC ATTENUATOR	1	
511(7)		VBE0003	EARPHONE	1	

ELECTRICAL REPLACEMENT PARTS LIST

Model No. NV-100E/B/EG

Notes:
1. * Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
   Components identified by ⚠ have special characteristics important for safety.
   When replacing any of these components, use only the original ones.
3. Unless otherwise specified,
   All resistors are in OHMS (Ω), 1/8W ± 5% carbon. K=1,000Ω, M=1,000KΩ.
   All capacitors are in MICROFARADS (μF), ±10% P=μμF.

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
		VEP03137A	Main P.C.B. Unit	1	NV-100E/B
		VEP03137B	Main P.C.B. Unit	1	NV-100EG
		VEP06164A	System Control & Memory	1	
			Counter P.C.B. Unit		
		VEP02148B	Cylinder Motor Drive	1	
			P.C.B. Unit		
		VEK1475	Capstan Motor Drive	1	
			P.C.B. Unit		
		VEP06165B	Back-Up Circuit P.C.B.	1	
			Unit		
		VJB00799	Full Erase Head P.C.B.	1	
		VJB00802	Supply Reel Detector P.C.B.	1	
		VJB00801	Take-up Reel Detector P.C.B.	1	
		VJB00796	Take-up Photo TR P.C.B.	1	
		VJB00901	Supply Photo TR P.C.B.	1	
		VJB00896	Safety Tab Switch P.C.B.	1	
		VJB00803	FG Head P.C.B.	1	
		ENC17553	RF Converter	1	NV-100E/EG ⚠
		ENC17554	RF Converter	1	NV-100B ⚠
		VEP03137A	Main P.C Board Unit		NV-100E/B
		VEP03137B			NV-100EG
			AVR Section		
			Integrated Circuits		
IC1001		BA6122A		1	
IC1002		VCR0044		1	
			Transistors		
Q1001,1002		2SB835		2	(Q,R)
Q1003		2SB772		1	(P,Q)
Q1004		2SD992		1	(K,L)
Q1005		2SB641		1	(Q,R)
Q1006-1008		2SD636		3	(Q,R)
Q1009		2SD889		1	(Q,R,S)
Q1010		2SB835		1	(Q,R)
Q1011		2SB819		1	(Q,R)
Q1012		2SB643		1	(Q,R)
			Diodes		
D1001-1004		11DQ04FE7		4	
D1005,1006		MA165		2	
			Resistors		
R1001		ERDS2TJ253	1/4W 15K	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R1002		ERDS2TJ393	1/4W 39K	1	
R1003,1004		ERDS2TJ103	1/4W 10K	2	
R1005		ERDS2TJ333	1/4W 33K	1	
R1006		ERDS2TJ331	1/4W 330	1	
R1007		ERDS2TJ182	1/4W 1.8K	1	
R1008		ERDS2TJ391	1/4W 390	1	
R1009		ERDS2TJ222	1/4W 2.2K	1	
R1010		ERDS2TJ331	1/4W 330	1	
R1011		ERDS2TJ681	1/4W 680	1	
R1012		ERDS2TJ122	1/4W 1.2K	1	
R1013		ERDS2TJ1R0	1/4W 1.0	1	
R1014		ERX12ANJR56	Metal 1/2W 0.56	1	
R1015		ERDS2TJ333	1/4W 33K	1	
R1016		ERDS2TJ104	1/4W 100K	1	
R1017		ERDS2TJ273	1/4W 27K	1	
R1018		ERDS2TJ183	1/4W 18K	1	
R1019,1020		ERDS2TJ473	1/4W 47K	2	
R1021		ERDS2TJ472	1/4W 4.7K	1	
R1022		ERDS2TJ123	1/4W 12K	1	
R1023		ERDS2TJ333	1/4W 33K	1	
R1024		ERDS2TJ104	1/4W 100K	1	
R1025		ERDS2TJ563	1/4W 56K	1	
R1026		ERDS2TJ332	1/4W 3.3K	1	
R1027		ERDS2TJ123	1/4W 12K	1	
R1028		ERDS2TJ122	1/4W 1.2K	1	
R1029,1030		EVN3ACA00B54	Variable 50K	2	
			Capacitors		
C1001		ECCF1H390K	Ceramic 50V 39P	1	
C1002,1003		ECCF1H221K	Ceramic 50V 220P	2	
C1004		ECKF1H103ZF	Ceramic 50V 0.01	1	
C1005		ECKF1H331KB	Ceramic 50V 330P	1	
C1006,1007		ECEA1CSS221	Electrolytic 16V 220	2	
C1008		ECEA1CSS101	Electrolytic 16V 100	1	
C1009,1010		ECEA1ASS221	Electrolytic 10V 220	2	
C1011,1012		ECEA0JSS221	Electrolytic 6.3V 220	2	
C1013		ECEA0JK330	Electrolytic 6.3V 33	1	
C1014		ECEA0JK101	Electrolytic 6.3V 100	1	
C1015		ECEA1HK010	Electrolytic 50V 1	1	
			Coils		
L1001-1003		VLQ0085		3	
L1004-1006		VLS0084		3	
L1007		VLQ0083		1	
			Fuses		
F1001		XBA2C05TR0		1	⚠
F1002		VSF0021		1	⚠

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Servo Section		
			Integrated Circuits		
IC2001		AN6357		1	
IC2002		MN6165VBA		1	
IC2003		AN6356		1	
IC2004		MN6281		1	
IC2005		AN6562		1	
IC2006		VCR0053		1	
IC2007		MN1453VFD		1	
IC2008		AN6914		1	
IC2009		VCR0055		1	
			Transistors		
Q2001,2002		2SD636		2	(Q,R,S)
Q2003		2SC2603		1	(E2,F)
Q2004,2005		2SD636		2	(Q,R,S)
Q2006		2SA1115		1	(E,F)
Q2007		2SD636		1	(Q,R,S)
Q2014		2SD636		1	(Q,R,S)
Q2015		2SA1115		1	(E,F)
Q2016,2017		2SD636		2	(Q,R,S)
Q2018		2SC2603		1	(E2,F)
Q2019,2020		2SD636		2	(Q,R,S)
Q2022		2SA1115		1	(E,F)
			Diodes		
D2001-2007		MA165		7	
D2009		MA165		1	
D2011-2013		MA165		3	
			Resistors		
R2001,2002		ERDS2TJ104	1/4W 100K	2	
R2003		ERDS2TJ123	1/4W 12K	1	
R2004		ERDS2TJ223	1/4W 22K	1	
R2005		ERDS2TJ563	1/4W 56K	1	
R2006		ERDS2TJ224	1/4W 220K	1	
R2007		ERDS2TJ103	1/4W 10K	1	
R2008		ERDS2TJ183	1/4W 18K	1	
R2009		ERDS2TJ105	1/4W 1M	1	
R2010		ERDS2TJ122	1/4W 1.2K	1	
R2011		ERPF3A4M402S	Thermistor 4K	1	
R2012		ERDS2TJ473	1/4W 47K	1	
R2013		EVN3ACA00B15	Variable 100K	1	
R2014		ERDS2TJ473	1/4W 47K	1	
R2015		ERDS2TJ272	1/4W 2.7K	1	
R2016		ERDS2TJ333	1/4W 33K	1	
R2017		ERDS2TJ103	1/4W 10K	1	
R2018		ERDS2TJ332	1/4W 3.3K	1	
R2019		ERDS2TJ102	1/4W 1K	1	
R2020,2021		ERDS2TJ103	1/4W 10K	2	
R2022		ERDS2TJ473	1/4W 47K	1	
R2023		ERDS2TJ122	1/4W 1.2K	1	
R2024		ERDS2TJ154	1/4W 150K	1	
R2025		ERDS2TJ224	1/4W 220K	1	
R2026		ERDS2TJ154	1/4W 150K	1	
R2027		ERDS2TJ104	1/4W 100K	1	
R2028,2029		ERDS2TJ154	1/4W 150K	2	
R2030		ERDS2TJ124	1/4W 120K	1	
R2031		ERDS2TJ333	1/4W 33K	1	
R2032		ERDS2TJ222	1/4W 2.2K	1	
R2035		ERDS2TJ103	1/4W 10K	1	
R2036		ERDS2TJ334	1/4W 330K	1	
R2037		ERDS2TJ105	1/4W 1M	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R2039		ERDS2TJ563	1/4W 56K	1	
R2040		ERDS2TJ183	1/4W 18K	1	
R2041		ERDS2TJ223	1/4W 22K	1	
R2042		ERDS2TJ154	1/4W 150K	1	
R2043		ERDS2TJ274	1/4W 270K	1	
R2044		ERDS2TJ563	1/4W 56K	1	
R2045		ERDS2TJ682	1/4W 6.8K	1	
R2046		EVN3ACA00B15	Variable 100K	1	
R2047		ERDS2TJ223	1/4W 22K	2	
R2048		ERDS2TJ154	1/4W 150K	1	
R2049,2050		ERDS2TJ104	1/4W 100K	2	
R2051		ERDS2TJ472	1/4W 4.7K	1	
R2052		ERDS2TJ222	1/4W 2.2K	1	
R2053		ERDS2TJ181	1/4W 180	1	
R2055		EVN3ACA00B25	Variable 200K	1	
R2056		ERDS2TJ563	1/4W 56K	1	
R2057		ERDS2TJ154	1/4W 150K	1	
R2058		EVN3ACA00B25	Variable 200K	1	
R2059		ERDS2TJ393	1/4W 39K	1	
R2060		ERDS2TJ103	1/4W 10K	1	
R2061		ERDS2TJ562	1/4W 5.6K	1	
R2062		ERDS2TJ103	1/4W 10K	1	
R2063		ERDS2TJ271	1/4W 270	1	
R2064		ERDS2TJ471	1/4W 470	1	
R2065		ERDS2TJ104	1/4W 100K	1	
R2066		ERDS2TJ223	1/4W 22K	1	
R2067		EVN3ACA00B24	Variable 20K	1	
R2068		ERDS2TJ153	1/4W 15K	1	
R2069		ERDS2TJ332	1/4W 3.3K	1	
R2070		ERDS2TJ222	1/4W 2.2K	1	
R2071		ERDS2TJ334	1/4W 330K	1	
R2072		ERDS2TJ104	1/4W 100K	1	
R2073		ERDS2TJ224	1/4W 220K	1	
R2074		ERDS2TJ103	1/4W 10K	1	
R2075		ERDS2TJ332	1/4W 3.3K	1	
R2076		ERDS2TJ562	1/4W 5.6K	1	
R2077,2078		ERDS2TJ104	1/4W 100K	2	
R2079		EVN3ACA00B25	Variable 200K	1	
R2080		ERDS2TJ823	1/4W 82K	1	
R2081-2084		ERDS2TJ563	1/4W 56K	4	
R2085		ERDS2TJ562	1/4W 5.6K	1	
R2086		ERDS2TJ104	1/4W 100K	1	
R2087		ERDS2TJ563	1/4W 56K	1	
R2088		ERDS2TJ562	1/4W 5.6K	1	
R2089		ERDS2TJ224	1/4W 220K	1	
R2090		ERDS2TJ103	1/4W 10K	1	
R2091		ERDS2TJ223	1/4W 22K	1	
R2093		ERDS2TJ104	1/4W 100K	1	
R2094		ERDS2TJ394	1/4W 390K	1	
R2095		ERDS2TJ124	1/4W 120K	1	
R2096		ERDS2TJ154	1/4W 150K	1	
R2097		ERDS2TJ331	1/4W 330	1	
R2098		ERDS2TJ221	1/4W 220	1	
			Capacitors		
C2001		ECCF1H470K	Ceramic 50V 47P	1	
C2002		ECEA0JK010	Electrolytic 6.3V 1	1	
C2003		ECWM1H102KZ	Mylar 50V 0.001	1	
C2004		ECEA0EKN2R2	Electrolytic 25V 2.2	1	
C2005		ECWM1H152KZ	Mylar 50V 0.0015	1	
C2006		ECSF16ER1	Tantalum 16V 0.1	1	
C2007		ECKF1H222KB	Ceramic 50V 2200P	1	
C2008		ECEA1HKR33	Electrolytic 50V 0.33	1	
C2009		ECEA1HKN010	Electrolytic 50V 1	1	
C2010		ECEA1EKN2R2	Electrolytic 25V 2.2	1	
C2011		ECEA1HK010	Electrolytic 50V 1	1	
C2012,2013		ECWM1H562KZ	Mylar 50V 0.0056	2	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
C2014		ECSF16ER1	Tantalum 16V 0.1	1	
C2015,2016		ECEA0JK470	Electrolytic 6.3V 47	2	
C2017		ECEA1CK100	Electrolytic 16V 10	1	
C2018		ECEA1HK010	Electrolytic 50V 1	1	
C2019		ECCF1H050CC	Ceramic 50V 5P	1	
C2020		ECWM1H562KZ	Mylar 50V 0.0056	1	
C2021		ECEA1HK0R1	Electrolytic 50V 0.1	1	
C2022,2023		ECEA0JK470	Electrolytic 6.3V 47	2	
C2024		ECWN1H182KZ	Mylar 50V 0.0018	1	
C2025,2026		ECEA1CK100	Electrolytic 16V 10	2	
C2027		ECEA0JK470	Electrolytic 6.3V 47	1	
C2028		ECWM1H223KZ	Mylar 50V 0.022	1	
C2029		ECEA0JK470	Electrolytic 6.3V 47	1	
C2030		ECWM1H472KZ	Mylar 50V 0.0047	1	
C2031		ECWM1H123KZ	Mylar 50V 0.012	1	
C2032		ECV1ZW20X53N	Trimmer 500V 20P	1	
C2033		ECWM1H472KZ	Mylar 50V 0.0047	1	
C2035		ECEA0JK470	Electrolytic 6.3V 47	1	
C2036		ECEA1CK100	Electrolytic 16V 10	1	
C2037		ECEA1HK2R2	Electrolytic 50V 2.2	1	
C2038		ECCF1H270KC	Ceramic 50V 27P	1	
C2039		ECWM1H153KZ	Mylar 50V 0.015	1	
C2040		ECWM1H332KZ	Mylar 50V 0.0033	1	
C2041		ECEA1HK3R3	Electrolytic 50V 3.3	1	
C2042		ECEA0JK470	Electrolytic 6.3V 47	1	
C2043		ECEA1HKR22	Electrolytic 50V 0.22	1	
C2044		ECWM1H223KZ	Mylar 50V 0.022	1	
C2045		ECEA1AK220	Electrolytic 10V 22	1	
C2046		ECQV05184JZ	Mylar 0.18	1	
C2047		ECEA1HK010	Electrolytic 50V 1	1	
C2048		ECKF1H472KB	Ceramic 50V 4700P	1	
			Coils		
L2001		VLQEL06F471K	470μH	1	
L2002		VLQEL05R220K	22μH	1	
			Crystal		
X2001		VSX0091		1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Luminance Section		
			Integrated Circuits		
IC3001		VEFY003	FIC Y-3	1	
IC3002		VCR0042		1	
IC3003		AN6326		1	
IC3004		VCR0043		1	
			Transistors		
Q3001		2SD636		1	(Q,R,S)
Q3002		2SC2206		1	(B,C)
Q3003		2SD636		1	(Q,R,S)
Q3004-3006		2SC2206		3	(B,C)
Q3007		2SD636		1	(Q,R,S)
Q3008		2SB641		1	(Q,R)
Q3009,3010		2SC2206		2	(B,C)
Q3012,3013		2SD636		2	(Q,R,S)
Q3014,3015		2SC2206		2	(B,C)
			Diodes		
D3001,3002		MA165		2	
D3003		RD3.3EB	Zener	1	
D3004-3006		1SS99		3	
D3007		MA165		1	
D3008,3009		1SS99		2	
			Resistors		
R3001,3002		ERDS2TJ103	1/4W 10K	2	
R3003		ERDS2TJ102	1/4W 1K	1	
R3004		ERDS2TJ271	1/4W 270	1	
R3005		ERDS2TJ681	1/4W 680	1	
R3006		ERDS2TJ102	1/4W 1K	1	
R3007		ERDS2TJ222	1/4W 2.2K	1	
R3008		ERDS2TJ100	1/4W 10	1	
R3009		ERDS2TJ331	1/4W 330	1	
R3010		ERDS2TJ684	1/4W 680K	1	
R3011		EVN3ACA00B13	Variable 1K	1	
R3012		ERDS2TJ820	1/4W 82	1	
R3013		ERDS2TJ821	1/4W 820	1	
R3014		ERDS2TJ681	1/4W 680	1	
R3015,3016		ERDS2TJ393	1/4W 39K	2	
R3017		ERDS2TJ470	1/4W 47	1	
R3018,3019		ERDS2TJ100	1/4W 10	2	
R3020,3021		EVN3ACA00B13	Variable 1K	2	
R3022		ERDS2TJ391	1/4W 390	1	
R3023		ERDS2TJ102	1/4W 1K	1	
R3024		ERDS2TJ391	1/4W 390	1	
R3025,3026		ERDS2TJ102	1/4W 1K	2	
R3027		ERDS2TJ152	1/4W 1.5K	1	
R3028		ERDS2TJ681	1/4W 680	1	
R3029		ERDS2TJ152	1/4W 1.5K	1	
R3030		ERDS2TJ471	1/4W 470		
R3031		ERDS2TJ152	1/4W 1.5K	1	
R3032		ERDS2TJ561	1/4W 560	1	
R3033		ERDS2TJ103	1/4W 10K	1	
R3034		ERDS2TJ102	1/4W 1K	1	
R3035		ERDS2TJ270	1/4W 27	1	
R3036		ERDS2TJ561	1/4W 560	1	
R3037		ERDS2TJ392	1/4W 3.9K	1	
R3038		ERDS2TJ152	1/4W 1.5K	1	
R3039		ERDS2TJ102	1/4W 1K	1	
R3040		ERDS2TJ331	1/4W 330	1	
R3041		ERDS2TJ561	1/4W 560	1	
R3043		ERDS2TJ102	1/4W 1K	1	
R3044		ERDS2TJ222	1/4W 2.2K	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R3045		ERDS2TJ102	1/4W 1K	1	
R3046		ERDS2TJ152	1/4W 1.5K	1	
R3047,3048		ERDS2TJ103	1/4W 10K	2	
R3049		ERDS2TJ152	1/4W 1.5K	1	
R3050		ERDS2TJ122	1/4W 1.2K	1	
R3051		ERDS2TJ222	1/4W 2.2K	1	
R3052		ERDS2TJ472	1/4W 4.7K	1	
R3053		ERDS2TJ561	1/4W 560	1	
R3054		ERDS2TJ683	1/4W 68K	1	
R3055		ERDS2TJ223	1/4W 22K	1	
R3057		ERDS2TJ273	1/4W 27K	1	
R3058		ERDS2TJ223	1/4W 22K	1	
R3059,3060		ERDS2TJ561	1/4W 560	2	
R3061		ERDS2TJ121	1/4W 120	1	
R3062		ERDS2TJ561	1/4W 560	1	
R3063		EVN3ACA00B23	Variable 2K	1	
R3064		ERDS2TJ471	1/4W 470	1	
R3065		ERDS2TJ271	1/4W 270	1	
R3066		ERDS2TJ473	1/4W 47K	1	
R3067		ERDS2TJ271	1/4W 270	1	
R3068		ERDS2TJ473	1/4W 47K	1	
R3069		ERDS2TJ471	1/4W 470	1	
R3070		ERDS2TJ271	1/4W 270	1	
R3071		ERDS2TJ102	1/4W 1K	1	
R3072		ERDS2TJ471	1/4W 470	1	
R3073		ERDS2TJ561	1/4W 560	1	
R3076		ERDS2TJ102	1/4W 1K	1	
R3077		ERDS2TJ332	1/4W 3.3K	1	
R3078		ERDS2TJ392	1/4W 3.9K	1	
R3079,3080		ERDS2TJ104	1/4W 100K	2	
R3081		ERDS2TJ680	1/4W 68	1	
R3082		ERDS2TJ561	1/4W 560	1	
R3083,3084		ERDS2TJ102	1/4W 1K	2	
R3085		ERDS2TJ681	1/4W 680	1	
R3086,3087		ERDS2TJ154	1/4W 150K	2	
R3088		ERDS2TJ102	1/4W 1K	1	
R3089		ERDS2TJ681	1/4W 680	1	
			Capacitors		
C3001		ECEA1EK4R7	Electrolytic 25V 4.7	1	
C3002		VCYD1C104MX	Semiconductor 16V 0.1	1	
C3003		ECEA1HK010	Electrolytic 50V 1	1	
C3004,3005		ECEA0JK470	Electrolytic 6.3V 47	2	
C3006		ECEA1HK2R2	Electrolytic 50V 2.2	1	
C3007		ECEA0JK101	Electrolytic 6.3V 100	1	
C3008		ECWM1H333KZ	Mylar 50V 0.033	1	
C3009,3010		ECEA1HK010	Electrolytic 50V 1	2	
C3011		ECCF1H151K	Ceramic 50V 150P	1	
C3012		ECEA1CK100	Electrolytic 16V 10	1	
C3013		ECEA1EK4R7	Electrolytic 25V 4.7	1	
C3014		ECEA1HK2R2	Electrolytic 50V 2.2	1	
C3015		ECKF1H122KB	Ceramic 50V 1200P	1	
C3016,3017		ECKF1H103ZF	Ceramic 50V 0.01	2	
C3018		ECEA1AK330	Electrolytic 10V 33	1	
C3019		ECSF16E1	Tantalum 16V 1	1	
C3020		ECEA1CK100	Electrolytic 16V 10	1	
C3021		VCYD1C104MX	Semiconductor 16V 0.1	1	
C3022		ECEA0JK470	Electrolytic 6.3V 47	1	
C3023		ECEA1CK100	Electrolytic 16V 10	1	
C3024		ECY1ZW60X64	Trimmer 500V 60P	1	
C3025		VCYD1C104MX	Semiconductor 16V 0.1	1	
C3026		ECV1ZW60X64	Trimmer 500V 60P	1	
C3027		VCYD1C104MX	Semiconductor 16V 0.1	1	
C3028		ECEA1CK100	Electrolytic 16V 10	1	
C3029		ECEA0JK470	Electrolytic 6.3V 47	1	
C3030		ECEA1HK010	Electrolytic 50V 1	1	
C3031		ECKF1H103ZF	Ceramic 50V 0.01	1	
C3032		ECCF1H560K	Ceramic 50V 56P	1	
C3033		ECCF1H270KC	Ceramic 50V 27P	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
C3034		ECKF1H561KB	Ceramic 50V 560P	1	
C3035		ECCF1H560K	Ceramic 50V 56P	1	
C3036		ECKF1H821KB	Ceramic 50V 820P	1	
C3037		ECKF1H103ZF	Ceramic 50V 0.01	1	
C3038		ECCF1H151K	Ceramic 50V 150P	1	
C3039		ECCF1H271J	Ceramic 50V 270P	1	
C3040		ECKF1H103ZF	Ceramic 50V 0.01	1	
C3041		ECCF1H390K	Ceramic 50V 39P	1	
C3042		ECKF1H103ZF	Ceramic 50V 0.01	1	
C3043		ECCF1H120K	Ceramic 50V 12P	1	
C3044		ECKF1H103ZF	Ceramic 50V 0.01	1	
C3045		ECEA0JK470	Electrolytic 6.3V 47	1	
C3047		ECKF1H221KB	Ceramic 50V 220P	1	
C3048		ECEA0JK101	Electrolytic 6.3V 100	1	
C3049,3050		ECEA1CN100	Electrolytic 16V 10	2	
C3051		ECCF1H101K	Ceramic 50V 100P	1	
C3052		ECWM1H182JZ	Mylar 50V 0.0018	1	
C3053		ECCF1H820K	Ceramic 50V 82P	1	
C3054		ECCF1H151K	Ceramic 50V 150P	1	
C3055		ECEA0JK220	Electrolytic 6.3V 22	1	
C3056,3057		ECEA1AK330	Electrolytic 10V 33	2	
C3058		ECKF1H122KB	Ceramic 50V 1200P	1	
C3059,3060		ECEA0JSS221	Electrolytic 6.3V 220	2	
C3061		ECEA0JK220	Electrolytic 6.3V 22	1	
C3062		ECEA1CK100	Electrolytic 16V 10	1	
C3063		ECEA1ASS101	Electrolytic 10V 100	1	
C3064		ECCP1H560K	Ceramic 50V 56P	1	
C3065		ECEA0JSS221	Electrolytic 6.3V 220	1	
C3066		ECEA0JK101	Electrolytic 6.3V 100	1	
C3067		ECKF1H102KB	Ceramic 50V 1000P	1	
C3068		ECCF1H220K	Ceramic 50V 22P	1	
C3069		ECCF1H470	Ceramic 50V 47P	1	
C3070		ECCF1H820K	Ceramic 50V 82P	1	
C3146		ECKF1H103ZF	Ceramic 50V 0.01	1	
			Coils		
L3001-3003		VLQEL05R101K	100μH	3	
L3004		VLQEL05R270K	27μH	1	
L3005		VLQEL05R2R2K	2.2μH	1	
L3006		VLQEL05R101K	100μH	1	
L3007		VLQEL05R270K	27μH	1	
L3008		VLQEL06F471K	470μH	1	
L3009		VLQEL05R680K	68μH	1	
L3010		VLQEL05R180K	18μH	1	
L3011		VLQEL05R3R3K	3.3μH	1	
L3012		VLQEL06R102K	1mH	1	
L3014		VLQEL05R101K	100μH	1	
L3015		VLQEL05R220K	22μH	1	
L3016		VLQEL05R680K	68μH	1	
L3017		VLQEL05R101K	100μH	1	
L3018		VLQEL05R680K	68μH	1	
			Filters		
FL3001		VLF0196		1	
FL3002		VLF0195		1	
FL3003		VLF0197		1	
FL3004		VLF0188		1	
			Delay Lines		
DL3001		EFDKL645A13A		1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Audio Section		
			Integrated Circuits		
IC4001		VEFA001	FIC A-1	1	
IC4002		VEFA003	FIC A-3	1	
			Transistor		
Q4001		2SD636		1	(Q,R,S)
			Resistors		
R4001		ERDS2TJ472	1/4W 4.7K	1	
R4002		ERDS2TJ010	1/4W 100	1	
R4003		ERDS2TJ5R6	1/4W 5.6	1	
R4004		ERDS2TJ221	1/4W 220	1	
R4005		ERDS2TJ183	1/4W 18K	1	
R4006		ERDS2TJ223	1/4W 22K	1	
R4007		ERDS2TJ101	1/4W 100	1	
R4008		ERDS2TJ151	1/4W 150	1	
R4009			Variable 50K	1	
R4010		EVN3ACA00B15	Variable 100K	1	
R4011		ERDS2TJ333	1/4W 33K	1	
R4012		ERDS2TJ681	1/4W 680	1	
R4013		ERDS2TJ103	1/4W 10K	1	
R4014		ERDS2TJ391	1/4W 390	1	
R4015		ERDS2TJ473	1/4W 47K	1	
			Capacitors		
C4001		ECKF1H103ZF	Ceramic 50V 0.01	1	
C4002		ECEA1EK3R3	Electrolytic 25V 3.3	1	
C4003		ECEA1AK330	Electrolytic 10V 33	1	
C4004		ECEA1HK2R2	Electrolytic 50V 2.2	1	
C4005		ECQV05474JZ	Mylar 50V 0.47	1	
C4006		ECEA1AK330	Electrolytic 10V 33	1	
C4007		ECEA1HK010	Electrolytic 50V 1	1	
C4008		ECEA0JK220	Electrolytic 6.3V 22	1	
C4010		ECQP1152JZ	Mylar 100V0.0015	1	
C4011		ECWM1H153KZ3	Mylar 50V 0.015	1	
C4012		ECKZ1H472ZF	Ceramic 50V 4700P	1	
C4013,4014		ECEA1CK100	Electrolytic 16V 10	2	
C4015		ECEA0JK101	Electrolytic 6.3V 100	1	
C4016		ECEA1CK100	Electrolytic 16V 10	1	
C4017		ECEA0JK470	Electrolytic 6.3V 47	1	
C4018		ECQV05184JZ	Mylar 50V 0.18	1	
C4019		ECWM1H153JZ	Mylar 50V 0.015	1	
C4020		ECWM1H473KZ	Mylar 50V 0.047	1	
C4022		ECEA1CK100	Electrolytic 16V 10	1	
C4023		ECEA0JK470	Electrolytic 6.3V 47	1	
C4024		ECEA1EK3R3	Electrolytic 25V 3.3	1	
C4025		ECEA1ASS101	Electrolytic 10V 100	1	
C4027		ECEA0CK100	Electrolytic 6.3V 10	1	
C4028		ECCF1H391	Ceramic 50V 390P	1	
C4029		ECKF1H102KB	Ceramic 50V 1000P	1	
			Coils		
L4001-4004		VLQEL06F471K	470μH	1	
			Transformers		
T4001		ELM7Q207E		1	
T4002		VLQ0096		1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Loading Motor Drive		
			Section		
			Integrated Circuit		
IC6401		VCR0045		1	
			Transistors		
Q6401		2SB772		1	(P,Q) ⚠
Q6402		2SB819		1	(Q,R)
Q6403,6404		2SD892		2	(Q,R)
Q6405,6406		2SD636		2	(Q,R,S)
Q6407		2SB774		1	(Q,R,S)
			Diodes		
D6401		RD11JB	Zener	1	
D6402-6405		MA165		4	
D6406		11DQ04FE7		1	
D6407-6411		MA165		5	
			Resistors		
R6401		ERDS2TJ102	1/4W 1K	1	
R6402		ERX12ANJR51	Metal 1/2W 0.51	1	
R6403		ERDS2TJ220	1/4W 22	1	
R6404		ERDS2TJ823	1/4W 82K	1	
R6405		ERDS2TJ102	1/4W 1K	1	
R6406		ERDS2TJ221	1/4W 220	1	
R6407		ERDS2TJ683	1/4W 68K	1	
R6408,6409		ERDS2TJ223	1/4W 22K	2	
R6410		ERDS2TJ562	1/4W 5.6K	1	
R6411		ERDS2TJ563	1/4W 56K	1	
R6412		ERDS2TJ333	1/4W 33K	1	
R6413,6414		ERDS2TJ563	1/4W 56K	2	
R6415,6416		ERDS2TJ683	1/4W 68K	2	
R6417		ERDS2TJ103	1/4W 10K	1	
R6418		ERDS2TJ473	1/4W 47K	1	
R6419,6420		ERDS2TJ333	1/4W 33K	2	
R6421		ERDS2TJ102	1/4W 1K	1	
			Capacitors		
C6401		ECEA1CK220	Electrolytic 16V 22	1	
C6402		ECEA1HK010	Electrolytic 50V 1	1	
C6403		ECEA1CK330	Electrolytic 16V 33	1	
C6404		ECEA1HK010	Electrolytic 50V 1	1	
C6405		ECKF1H103ZF	Ceramic 50V 0.01	1	
			Relay		
RY6401		VSY1016		1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Jack Panel Section		
			Integrated Circuit		
IC6501		VCR0056		1	
			Transistors		
Q6501		2SD636		1	(Q,R,S)
Q6502		2SB641		1	(Q,R)
Q6503		2SD636		1	(Q,R,S)
Q6504		2SB641		1	(Q,R)
Q6505,6506		2SD636		2	(Q,R,S)
Q6507		2SB641		1	(Q,R)
Q6508		2SD636		1	(Q,R,S)
Q6509		2SB641		1	(Q,R)
			Diodes		
D6501-6507		MA165		7	
D6508		ERC0402E3		1	
D6509		ERC81004H		1	
D6510,6511		MA165		2	
			Resistors		
R6501		ERDS2TJ750	1/4W 75	1	
R6502		ERDS2TJ680	1/4W 68	1	
R6503		ERDS2TJ104	1/4W 100K	1	
R6505		ERDS2TJ223	1/4W 22K	1	
R6506		ERDS2TJ471	1/4W 470	1	
R6507		ERDS2TJ681	1/4W 680	1	or ERDS2TJ103 1/4W 10K
R6508		ERDS2TJ750	1/4W 75	1	
R6509		ERDS2TJ563	1/4W 56K	1	
R6510		ERDS2TJ102	1/4W 1K	1	
R6511		ERDS2TJ182	1/4W 1.8K	1	
R6512		ERDS2TJ102	1/4W 1K	1	
R6513		ERDS2TJ222	1/4W 2.2K	1	
R6514		ERDS2TJ563	1/4W 56K	1	
R6515		ERDS2TJ102	1/4W 1K	1	
R6516		ERDS2TJ272	1/4W 2.7K	1	
R6517		ERDS2TJ102	1/4W 1K	1	
R6518		ERDS2TJ224	1/4W 220K	1	
R6519		ERDS2TJ474	1/4W 470K	1	
R6520		ERDS2TJ682	1/4W 6.8K	1	
R6521		ERDS2TJ153	1/4W 15K	1	
R6522-6524		ERDS2TJ104	1/4W 100K	3	
R6525,6526		EVJ5LA007B15	Variable 100K	2	
R6527		ERDS2TJ103	1/4W 10K	1	
R6528		ERDS2TJ104	1/4W 100K	1	
R6529		ERDS2TJ102	1/4W 1K	1	
R6530		ERDS2TJ104	1/4W 100K	1	
R6531		ERDS2TJ102	1/4W 1K	1	
R6532		ERDS2TJ331	1/4W 330	1	
R6533		ERDS2TJ222	1/4W 2.2K	1	
			Capacitors		
C6501,6502		ECEA1AK330	Electrolytic 10V 33	2	
C6503,6504		ECCZ1H121K	Ceramic 50V 120P	2	
C6505		ECEA1EK4R7	Electrolytic 25V 4.7	1	
C6506		ECEA1HKR33	Electrolytic 50V 0.33	1	
C6507		ECEA1HK010	Electrolytic 50V 1	1	
C6508		ECEA1HKN010	Electrolytic 50V 1	1	
C6509		ECKZ1H331KB	Ceramic 50V 330P	1	
C6510		ECSF35ER33	Tantalum 35V 0.33	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
C6511		ECEA1VK4R7	Electrolytic 35V 4.7	1	
C6512		ECEA1EK220	Electrolytic 25V 22	1	
C6513,6514		ECEA1HK010	Electrolytic 50V 1	2	
			Relay		
RY6501		VSY2028		1	
			Fuse		
F6501		XBA2C20TR0		1	⚠
		VGT0273	Tracking VR Knob	1	
			Chrominance Section		
			Integrated Circuits		
IC8001		VEFC003	FIC C-3	1	
IC8002		VEFC004	FIC C-4	1	
IC8003		VEFC005	FIC C-5	1	NV-100EG
			Transistors		
Q8001		2SD636		1	(Q,R,S)
Q8002		2SC2206		1	(B,C)
Q8003		2SD636		1	(Q,R,S)
Q8004		2SD636		1	(Q,R,S) NV-100EG
			Diode		
D8001		MA165		1	NV-100EG
			Resistors		
R8001		ERDS2TJ102	1/4W 1K	1	
R8002-8004		ERDS2TJ221	1/4W 220	3	
R8005		ERDS2TJ181	1/4W 180	1	
R8006		ERDS2TJ151	1/4W 150	1	
R8007		ERDS2TJ121	1/4W 120	1	
R8008		ERDS2TJ101	1/4W 100	1	
R8009		ERDS2TJ271	1/4W 270	1	NV-100EG
R8010		ERDS2TJ102	1/4W 1K	1	
R8011		ERDS2TJ102	1/4W 1K	1	
R8012		ERDS2TJ154	1/4W 150K	1	
R8013		ERDS2TJ681	1/4W 680	1	
R8014		ERDS2TJ152	1/4W 1.5K	1	
R8015		EVN3ACA00B23	Variable 2K	1	
R8016		ERDS2TJ331	1/4W 330	1	
R8017,8018		ERDS2TJ393	1/4W 39K	2	
R8019		ERDS2TJ471	1/4W 470	1	
R8020		ERDS2TJ222	1/4W 2.2K	1	NV-100EG

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R8021		ERDS2TJ271	1/4W 270	1	
R8022		EVN3ACA00B52	Variable 500	1	
R8023		ERDS2TJ271	1/4W 270	1	
R8024		ERDS2TJ222	1/4W 2.2K	1	
R8025		ERDS2TJ273	1/4W 27K	1	
R8026		ERDS2TJ123	1/4W 12K	1	
R8027		ERDS2TJ102	1/4W 1K	1	
R8028		ERDS2TJ391	1/4W 390	1	
R8029		ERDS2TJ562	1/4W 5.6K	1	
R8030		ERDS2TJ223	1/4W 22K	1	
R8031		ERDS2TJ124	1/4W 120K	1	
R8032		ERDS2TJ683	1/4W 68K	1	NV-100EG
R8033		ERDS2TJ102	1/4W 1K	1	NV-100EG
			Capacitors		
C8001		VCYD1C104MX	Semiconductor 16V 0.1	1	NV-100EG
C8002		ECEA0JK470	Electrolytic 6.3V 47	1	
C8003		ECEA1AK330	Electrolytic 10V 33	1	
C8004		ECCZ1H390K	Ceramic 50V 39P	1	
C8005		ECEA1AK330	Electrolytic 10V 33	1	
C8006		ECCF1H030DC	Ceramic 50V 3P	1	
C8007		ECV1ZW40X53N	Trimmer 500V 40P	1	
C8008		ECCF1H010CC	Ceramic 50V 1P	1	
C8009		ECEA1CK100	Electrolytic 16V 10	1	
C8010		ECWM1H682KZ	Mylar 50V 0.0068	1	
C8011		ECKF1H103ZF	Ceramic 50V 0.01	1	
C8012		ECEA1HK010	Electrolytic 50V 1	1	
C8013		ECEA1CK100	Electrolytic 16V 10	1	
C8014		ECKF1H103ZF	Ceramic 50V 0.01	1	
C8015		ECCZ1H390K	Ceramic 50V 39P	1	
C8016		ECEA1HK2R2	Electrolytic 50V 2.2	1	
C8017		ECEA1CK100	Electrolytic 16V 10	1	
C8019,8020		ECEA1AK330	Electrolytic 10V 33	2	
C8021		ECEA1HK010	Electrolytic 50V 1	1	
C8022		ECEA1HK0R1	Electrolytic 50V 0.1	1	
C8023		ECKF1H103ZF	Ceramic 50V 0.01	1	
C8024		ECCZ1H101K	Ceramic 50V 100P	1	
C8025		ECEA1CKS100	Electrolytic 16V 10	1	
C8026		ECCF1H221K	Ceramic 50V 220P	1	NV-100EG
C8027		ECEA1CKS100	Electrolytic 16V 10	1	NV-100EG
C8028		ECEA1AK330	Electrolytic 10V 33	1	NV-100EG
C8029		ECEA1HKN010	Electrolytic 50V 1	1	NV-100EG
C8030		ECWM1H563JZ	Mylar 50V 0.056	1	NV-100EG
C8031		ECCF1H680K	Ceramic 50V 68P	1	NV-100EG
C8033		ECKF1H103ZF	Ceramic 50V 0.01	1	
			Coils		
L8002		VLQEL05R390K	39µH	1	
L8003		VLQEL05R560K	56µH	1	
L8004		VLQEL06R102K	1mH	1	
L8005		VLQEL05R330K	33µH	1	
L8006		VLQEL05R390K	39µH	1	
L8007		VLQEL06L682J	6.8mH	1	
L8008		VLQEL05R680K	68µH	1	
L8009		ELM7Q207A		1	NV-100EG
L8010		VLQEL5R101	100µ	1	NV-100EG
			Filters		
FL8001		VLF0198		1	
FL8002		VLF0199		1	
FL8003		EFCS5R06MS4W		1	
FL8004		VLF0143		1	NV-100EG

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Delay Line		
DL8001		EFDWT124A13A		1	
			Crystal		
X8001		VSX0068		1	
			Connectors		
P1		VJP1242T	2P	1	
P2		VJP1239T	12P	1	
P3		VJP1233T	6P	1	
P4,5		VJP1237T	10P	2	
P6		VJP1232T	5P	1	
P7		VJP1229G	2P	1	
P8		VJP1229T	2P	1	
P9		VJP1233T	6P	1	
P10		VJP1232T	5P	1	
P11		VJP1229B	2P	1	
P12		VJP1230T	3P	1	
P13		VJP1229T	2P	1	
P14		VJP1237T	10P	1	
P15		VJP1235T	8P	1	
P16		VJP1229B	2P	1	
P27		VJP1229T	2P	1	
P45		VJP1230T	3P	1	
			Miscellaneous		
		TJC6320	Fuse Holder	4	
		ECCF1H101KC	Ceramic Capacitors 50V 100P	1	
		ERDS2TJ222	Resistor 1/4W 2200	1	
		VEP02148B	Cylinder Drive P.C.B. Unit		
			Integrated Circuit		
IC2501		AN6387		1	
			Transistors		
Q2501-2503		2SD636		3	(Q,R,S)
			Diodes		
D2501-2504		MA165		4	
			Resistors		
R2501		ERDS2TJ124	1/4W 120K	1	
R2502		ERX12ANJR56	Metal 1/2W 0.56	1	
R2503		ERDS2TJ104	1/4W 100K	1	
R2504		EROS2TKG3902	Metal 1/4W 39K	1	
R2505		EROS2TKG1502	Metal 1/4W 15K	1	
R2506-2508		ERDS2TJ470	1/4W 47	3	
R2509		ERDS2TJ105	1/4W 1M	1	
R2510		ERDS2TJ223	1/4W 22K	1	
R2511		ERDS2TJ683	1/4W 68K	1	
R2512		ERDS2TJ682	1/4W 6800	1	
R2513		ERDS2TJ472	1/4W 4700	1	
R2514		ERDS2TJ274	1/4W 270K	1	
R2515		EVN3ACA00B15	Variable 100K	1	
R2516		ERDS2TJ104	1/4W 100K	1	
R2517		ERDS2TJ153	1/4W 15K	1	
R2518		EROS2TKG3301	Metal 1/4W 39K	1	
R2519		EROS2TKG1201	Metal 1/4W 1200	1	
			Capacitors		
C2501		ECEA1CK470	Electrolytic 16V 47	1	
C2502		ECWM1H123KZ	Mylar 50V 0.012	1	

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
C2503	ECKF1H472ZF	Ceramic 50V 4700P	1	
C2504	ECWM1H682KZ	Mylar 50V 6800P	1	
C2505	ECEA1EK3R3	Electrolytic 25V 3.3	1	
C2506	ECSF16ER22K	Tantalum 16V 0.22	1	
C2507	ECKF1H102KB	Ceramic 50V 1000P	1	
C2508	ECEA1CK470	Electrolytic 16V 47	1	
C2509-2511	ECEA1EKN2R2	Electrolytic 25V 2.2	3	
C2512	ECSF16ER15K	Tantalum 16V 0.15	1	
C2513	ECKF1H102KB	Ceramic 50V 1000P	1	
C2514	ECEA1AK330	Electrolytic 10V 33	1	
		Miscellaneous		
P15	VJP1235	Connector 8P	1	
TP2501 GND	VJH0196	Check Terminal	2	
	VEK1475	Capstan Drive P.C. Board		
		Unit		
		Integrated Circuits		
IC2701	AN6676		1	
IC2702	VEFS001	FIC S-1	1	
		Transistors		
Q2701-2703	2SB819		3	(P,Q,R)
		Resistors		
R2701-2703	ERD2FCG220	22	3	
R2704	ERX12ANJR56	Metal Oxide 1/2W 0.56	1	
R2705	ERD10TJ392	3.9K	1	
		Capacitors		
C2701-2703	ECEA1HK2R2	Electrolytic 50V 2.2	3	
C2704	ECEA1HK0R1	Electrolytic 50V 0.1	1	
C2705,2706	ECEA1CK220	Electrolytic 16V 22	2	
		Connector		
P31	VJP1237T	10P	1	
		Spacer		
	VMX0424		1	

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
	VEP06164A	System Control P.C.Board		
		Unit		
		Integrated Circuits		
IC6001	μPD7502G090		1	
IC6002	MN1455AVA		1	
IC6003	MN1455AVB		1	
IC6004,6005	μPD4503BC		2	
IC6006	μPC393C		1	
		Transistors		
Q6001-6008	2SB641		8	(Q,R,S)
Q6009,6010	2SD636		2	(Q,R,S)
Q6012	2SD636		1	(Q,R,S)
Q6013,6014	2SB641		2	(Q,R,S)
Q6015,6016	2SD636		2	(Q,R,S)
Q6017	2SB641		1	(Q,R,S)
Q6018	2SD636		1	(Q,R,S)
Q6019	2SD992		1	(K,L)
Q6010-6022	2SD636		3	(Q,R,S)
Q6023	2SB641		1	(Q,R,S)
Q6024	2SC2594		1	
Q6025,6026	2SD636		2	(Q,R,S)
Q6027	2SB641		1	(Q,R,S)
Q6028	2SD636		1	(Q,R,S)
Q6029	2SB641		1	(Q,R,S)
Q6030	2SD638		1	(Q,R,S)
Q6031-6035	2SB641		5	(Q,R,S)
Q6036,6037	2SD636		2	(Q,R,S)
Q6039,6040	2SD636		2	(Q,R,S)
Q6041	2SC2603		1	(E2,F)
		Diodes		
D6001-6007	BR3902S	LED	7	
D6008	MA27W		1	
D6009-6022	MA165		14	
D6023	10E1		1	
D6024-6030	MA165		7	
D6032-6034	MA165		3	
D6036,6037	MA165		2	
D6038	MA27W		1	
D6039	MA165		1	
		Resistors		
R6001	ERDS2TJ561	1/4W 560	1	
R6002-6005	ERDS2TJ223	1/4W 22K	4	
R6006	ERDS2TJ821	1/4W 820	1	
R6007,6008	ERDS2TJ223	1/4W 22K	2	
R6009	ERDS2TJ103	1/4W 10K	1	
R6010,6011	ERDS2TJ223	1/4W 22K	2	
R6012	ERDS2TJ562	1/4W 5.6K	1	
R6013	ERDS2TJ223	1/4W 22K	1	
R6014	ERDS2TJ561	1/4W 560	1	
R6015	ERDS2TJ223	1/4W 22K	1	
R6016,6017	ERDS2TJ563	1/4W 56K	2	
R6018	ERDS2TJ223	1/4W 22K	1	
R6019	ERDS2TJ473	1/4W 47K	1	
R6020	ERDS2TJ223	1/4W 22K	1	
R6021	ERDS2TJ104	1/4W 100K	1	
R6022	ERDS2TJ331	1/4W 330	1	
R6023-6025	ERDS2TJ563	1/4W 56K	3	
R6026	ERDS2TJ123	1/4W 12K	1	
R6027-6029	ERDS2TJ104	1/4W 100K	3	
R6030	ERDS2TJ153	1/4W 15K	1	
R6032	ERDS2TJ331	1/4W 330	1	
R6033,6034	ERDS2TJ562	1/4W 5.6K	2	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R6037-6039		EROS2TLG1003	Metal 100K	3	
R6040		EROS2TKG2003	Metal 200K	1	
R6041		ERDS2TJ123	1/4W 12K	1	
R6042		ERDS2TJ222	1/4W 2.2K	1	
R6043-6045		ERDS2TJ223	1/4W 22K	3	
R6046		ERDS2TJ683	1/4W 68K	1	
R6047		ERDS2TJ153	1/4W 15K	1	
R6048		ERDS2TJ103	1/4W 10K	1	
R6049		ERDS2TJ682	1/4W 6.8K	1	
R6050		ERDS2TJ223	1/4W 22K	1	
R6051,6052		ERDS2TJ103	1/4W 10K	2	
R6053		ERDS2TJ105	1/4W 1M	1	
R6054		ERDS2TJ104	1/4W 100K	1	
R6055		ERDS2TJ332	1/4W 3.3K	1	
R6056		ERDS2TJ271	1/4W 270	1	
R6057		ERDS2TJ223	1/4W 22K	1	
R6058		ERDS2TJ823	1/4W 82K	1	
R6059		ERDS2TJ223	1/4W 22K	1	
R6060		ERDS2TJ124	1/4W 120K	1	
R6061		ERDS2TJ223	1/4W 22K	1	
R6062		ERDS2TJ823	1/4W 82K	1	
R6063		ERDS2TJ223	1/4W 22K	1	
R6064		ERDS2TJ682	1/4W 6.8K	1	
R6065		ERDS2TJ563	1/4W 56K	1	
R6066,6067		ERDS2TJ103	1/4W 10K	2	
R6068		ERDS2TJ221	1/4W 220	1	
R6069		ERDS2TJ103	1/4W 10K	1	
R6070-6072		ERDS2TJ104	1/4W 100K	3	
R6073		ERDS2TJ224	1/4W 220K	1	
R6074		ERDS2TJ104	1/4W 100K	1	
R6075		ERDS2TJ103	1/4W 10K	1	
R6076		ERDS2TJ223	1/4W 22K	1	
R6077,6078		ERDS2TJ563	1/4W 56K	2	
R6079		ERDS2TJ103	1/4W 10K	1	
R6080		ERDS2TJ333	1/4W 33K	1	
R6081		ERDS2TJ561	1/4W 560	1	
R6082,6083		ERDS2TJ563	1/4W 56K	2	
R6084		ERDS2TJ103	1/4W 100K	1	
R6085		ERDS2TJ333	1/4W 33K	1	
R6086		ERD25TJ560	1/4W 56	1	
R6087		ERDS2TJ273	1/4W 27K	1	
R6088		EVN3ACA00B14	Variable 10K	1	
R6089		ERDS2TJ563	1/4W 56K	1	
R6090,6091		ERDS2TJ223	1/4W 22K	2	
R6092		ERDS2TJ104	1/4W 100K	1	
R6093		EROS2TKG1803	Metal 180K	1	
R6094		ERO25CKF4703	Metal 470K	1	
R6095		ERDS2TJ564	1/4W 560K	1	
R6096		ERDS2TJ223	1/4W 22K	1	
R6097		ERDS2TJ334	1/4W 330K	1	
R6098		ERDS2TJ123	1/4W 12K	1	
R6099		ERDS2TJ104	1/4W 100K	1	
R6100		ERDS2TJ103	1/4W 10K	1	
R6101,6102		ERDS2TJ223	1/4W 22K	2	
R6103		ERDS2TJ103	1/4W 10K	1	
R6104,6105		ERDS2TJ223	1/4W 22K	2	
R6106,6107		ERDS2TJ104	1/4W 100K	2	
R6108		ERDS2TJ472	1/4W 4.7K	1	
R6109-6111		ERDS2TJ103	1/4W 10K	3	
R6112-6115		ERDS2TJ223	1/4W 22K	4	
R6116		ERDS2TJ103	1/4W 10K	1	
R6119-6124		ERDS2TJ223	1/4W 22K	6	
R6125		ERDS2TJ103	1/4W 10K	1	
R6126		ERDS2TJ104	1/4W 100K	1	
R6127		ERDS2TJ102	1/4W 1K	1	
R6128		ERDS2TJ153	1/4W 15K	1	
R6129,6130		ERDS2TJ104	1/4W 100K	2	
R6131		ERDS2TJ562	1/4W 5.6K	1	
R6132		ERDS2TJ104	1/4W 100K	1	
R6133		ERDS2TJ223	1/4W 22K	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R6134,6135		ERDS2TJ563	1/4W 56K	2	
R6136		ERDS2TJ103	1/4W 10K	1	
R6139,6140		ERDS2TJ563	1/4W 56K	2	
R6141		ERDS2TJ390	1/4W 39	1	
R6142		ERDS2TJ563	1/4W 56K	1	
R6143		ERDS2TJ124	1/4W 120K	1	
			Capacitors		
C6001		ECEA1HKL010	Electrolytic 50V 1	1	
C6002,6003		ECKZ1H221KB	Ceramic 50V 220P	2	
C6004-6006		ECKZ1H102KB	Ceramic 50V 1000P	3	
C6007		ECKF1H103ZF	Ceramic 50V 0.01	1	
C6008		ECEA1HKL010	Electrolytic 50V 1	1	
C6011		ECKF1H103ZF	Ceramic 50V 0.01	1	
C6012,6013		ECKZ1H561KB	Ceramic 50V 560P	2	
C6014		ECKF1H103ZF	Ceramic 50V 0.01	1	
C6015		ECEA0JK470	Electrolytic 6.3V 47	1	
C6016		ECEA1HKL010	Electrolytic 50V 1	1	
C6017		ECEA1EKL4R7	Electrolytic 25V 4.7	1	
C6018		ECKF1H472KB	Ceramic 50V 4700P	1	
C6019		ECKF1H222KB	Ceramic 50V 2200P	1	
C6020		ECKF1H103ZF	Ceramic 50V 0.01	1	
C6021		ECEA0JK220	Electrolytic 6.3V 22	1	
C6022		ECKF1H103ZF	Ceramic 50V 0.01	1	
C6023		ECWM1H473KZ	Ceramic 50V 0.047	1	
C6024		ECQV050104JB	Mylar 50V 0.1	1	
			Switches		
SW6001,6002		EVQQS107K		2	
SW6003		EVQQS107KA		1	
SW6004-6006		EVQQS107K		3	
SW6007-6009		EVQQS107KA		3	
SW1010,6011		EVQQS107K		2	
SW6012		ESD14184		1	
SW6014		EMR2511		1	
			Connectors		
JA-JD		VJP1235T	8P	4	
P6020		VJP1230T	3P	1	
P6021		VJP1231T	4P	1	
P6022		VJP1237T	10P	1	
P6023,6024		VJP1233T	6P	2	
P6025		VJP1237T	10P	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
		VEP06165B	Back-up P.C. Board Unit		
			Resistor		
R6552		ERX12ANJ3R9	Metal Oxide 1/2W 3.9	1	
			Capacitors		
C6551		ECEA1CV682	Electrolytic 16V 6800	1	
C6552-6554		EECW1R8A1	Gold Capacitor 1.8V 1	3	
			Connectors		
P34		VJP1229T	2P	1	
P35		VJP1229G	2P	1	
P36		VJP1229B	2P	1	
P37		VJP1229R	2P	1	
P38		VJP1231B	4P	1	
			Full Erase P.C. Board		
			Transistor		
Q6553		2SD636		1	
			Resistor		
R6553		ERD10TJ333	33K	1	
			Capacitors		
C6555		ECWM1H153J	Mylar 50V 0.015	1	
C6556		ECKF1H472Z	Ceramic 50V 4700	1	
C6557		ECWM1H333J	Mylar 50V 0.033	1	
C6558		ECEA1CK220	Electrolytic 16V 22	1	
			Transformer		
T6551		ELM7Q011E	Oscillator	1	
			Connector		
P23		VJP1229	2P	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Supply Reel Detector P.C. Board		
			Integrated Circuit		
		ON2160	Photo Interruptor	1	
		VJP1244G	4P Connector	1	
			Miscellaneous		
		VMX0380	Spacer	1	
			Take-up Reel Detector P.C. Board		
			Integrated Circuit		
		ON2160	Photo Interruptor	1	
		VJP1244G	4P Connector	1	
			Miscellaneous		
		VMX0380	Spacer	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Safety Tab SW P.C. Board		
		VSH0017	Safety Tab SW	1	
		VJP1229T	2P Connector	1	
			Supply Photo TR P.C. Board		
		PN150NV	Photo Transistor	1	
		MA165	Diode	2	
			Capacitor		
		ECEA1CK100	Electrolytic 16V 10	2	
		VJP1230R	3P Connector	1	
			Take-up Photo TR P.C. Board		
		PN150NV	Photo Transistor	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
		ENC17553	RF Converter		NV-100E/EG
			Integrated Circuits		
IC1		AN6395		1	
UO-1			UHF Oscillator	1	
			Transistors		
Q1,2		2SD636		2	
Q3,4		2SC1215		2	(R)
			Diodes		
D1		1S953		1	
D3		1SS86		1	
D4		MA1075	Zener	1	or RD7.5E
			Resistors		
R1		ERD10TJ333	33K	1	
R2		ERJ8GCJ103	Chip 10K	1	
R3		ERJ8GCJ331	Chip 330	1	
R4		ERJ8GCJ474	Chip 470K	1	
R5		ERJ8GCJ392	Chip 3.9K	1	
R6		ERJ8GCJ182	Chip 1.8K	1	
R7		ERJ8GCJ122	Chip 1.2K	1	
R8		ERJ8GCJ821	Chip 820	1	
R9		ERJ8GCJ562	Chip 5.6K	1	
R10		ERJ8GCJ151	Chip 150	1	
R11		ERD10TJ472	4.7K	1	
R12,13		ERJ8GCJ101	Chip 100	2	
R15		ERJ8GCJ270	Chip 27	1	
R16		ERD10TJ751	750	1	
R17		ERJ8GCJ121	Chip 120	1	
R18		ERD10TJ393	39K	1	
R19		ERD25FJ470	1/4W 47	1	
R20,21		ERD10TJ822	8.2K	2	(UO-1)
R22		ERD10TJ391	390	1	(UO-1)
VR1		EVX138CA00B13	Variable 1K	1	
VR2		EVX138CA00B14	Variable 10K	1	
			Capacitors		
C1		ECEA1AK330	Electrolytic 10V 33	1	
C2		ECEA1HK3R3	Electrolytic 50V 3.3	1	
C3		ECCF1H101KZ	Ceramic 50V 100P	1	
C4		CP2040CC	Chip 4P	1	
C5		CP2222MD	Chip 2200P	1	
C6		CP2150CC	Chip 15P	1	
C7		ECCF1H820KZ	Ceramic 82P	1	
C8		CP2050CC	Chip 5P	1	
C9		CT1152ZX	Semiconductor 1500P	1	
C10		ECEA1EK4R7	Electrolytic 25V 4.7	1	
C11		CP2103MD	Chip 0.01	1	
C12		CP2150J	Chip 15P	1	
C13		CP2680J	Chip 68P	1	
C14		CP2151J	Chip 150P	1	
C15		CP2390J	Chip 39P	1	
C16			Chip 27P	1	
C17		ECV1ZW25X53N	Trimmer 25P	1	
C18,19		CP2181J	Chip 180P	2	
C20		CY2102PE	1000P	1	(UO-1)
C21		CX2331KB	330P	1	(UO-1)
C22		CX2140K	14P	1	(UO-1)
C23		CX2040C	4P	1	(UO-1)

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
C24			Variable 7P	1	(UO-1) (Not Available)
C25		CP2070J	Chip 7P	1	
C26		CP2103MD	Chip 0.01	1	
C27		ECEA1CK470	Electrolytic 16V 47	1	
C28		CP2103MD	Chip 0.01	1	
C29		CP2102MD	Chip 1000P	1	
C30		ECCF1H010CC	Ceramic 50V 1P	1	
C31		CP2102MD	Chip 1000P	1	
C32		ECCF1H040CC	Ceramic 50V 4P	1	
C33		CU2DR2QA-S	0.2P	1	(UO-1)
			Coiles		
L1		LP403804	Coreless	1	
L2		FL3H8R2K	Peaking 8.2µH	1	
L3		LB1626092A02	Choke	1	
L4		LN07W350VL01		1	(UO-1)
L5		VN08W200L6		1	(UO-1)
L6		LB162609VU03	Choke	1	(UO-1)
			Tanses		
T1		VLT0327	SIF Oscillator	1	
T2		BRNA010V		1	
			Connectors		
P1		VJP1143	5P	1	
PJ		PNJA002E	Pin Jack	1	
		ENC17554	RF Converter		NV-100B
			Integrated Circuits		
IC1		AN6395		1	
UO-1			UHF Oscillator	1	
			Transistors		
Q1,2		2SD636		2	
Q3,4		2SC1215		2	(R)
			Diodes		
D1		1S953		1	
D3		2SS86		1	
D4		MA1075	Zener	1	or RD7.5E
			Resistors		
R1		ERD10TJ333	33K	1	
R2		ERJ8GCJ103	Chip 10K	1	
R3		ERJ8GCJ331	Chip 330	1	
R4		ERJ8GCJ474	Chip 470K	1	
R5		ERJ8GCJ392	Chip 3.9K	1	
R6		ERJ8GCJ182	Chip 1.8K	1	
R7		ERJ8GCJ122	Chip 1.2K	1	
R8		ERJ8GCJ821	Chip 820	1	
R9		ERJ8GCJ562	Chip 5.6K	1	
R10		ERJ8GCJ151	Chip 150	1	
R11		ERD10TJ562	5.6K	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R12,13		ERJ8GCJ101	Chip 100	2	
R15		ERJ8GCJ270	Chip 27	1	
R16		ERD10TJ751	750	1	
R17		ERJ8GCJ121	Chip 120	1	
R18		ERD10TJ393	39K	1	
R19		ERD25FJ470	1/4W 47	1	
R20,21		ERD10TJ822	8.2K	2	(UO-1)
R22		ERD10TJ391	390	1	(UO-1)
VR1		EVX138CA00B13	Variable 1K	1	
VR2		EVX138CA00B14	Variable 10K	1	
			Capacitors		
C1		ECEA1AK330	Electrolytic 10V 33	1	
C2		ECEA1HK3R3	Electrolytic 50V 3.3	1	
C3		ECCF1H101KZ	Ceramic 50V 100P	1	
C4		CP2040CC	Chip 4P	1	
C5		CP2222MD	Chip 2200P	1	
C6		CP2150CC	Chip 15P	1	
C7		ECCF1H820KZ	Ceramic 50V 82P	1	
C8		CP2050CC	Chip 5P	1	
C9		CT1152ZX	Semiconductor 1500P	1	
C10		ECEA1EK4R7	Electrolytic 25V 4.7	1	
C11		CP2103MD	Chip 0.01	1	
C12		CP2150J	Chip 15P	1	
C13		CP2680J	Chip 68P	1	
C14		CP2151J	Chip 150P	1	
C15		CP2390J	Chip 39P	1	
C16			Chip 27P	1	
C17		ECV1ZW25X53N	Trimmer 25P	1	
C18,19		CP2181J	Chip 180P	2	
C20		CY2102PE	1000P	1	(UO-1)
C21		CX2331KB	330P	1	(UO-1)
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C26		CP2103MD	Chip 0.01	1	
C27		ECEA1CK470	Electrolytic 16V 47	1	
C28		CP2103MD	Chip 0.01	1	
C29		CP2102MD	Chip 1000P	1	
C30		ECCF1H010CC	Ceramic 50V 1P	1	
C31		CP2102MD	Chip 1000P	1	
C32		ECCF1H040CC	Ceramic 50V 4P	1	
C33		CU2DR2QA-S	0.2P	1	(UO-1)
			Coils		
L1		LP403804	Coreless	1	
L2		FL3H8R2K	Peaking 8.2µH	1	
L3		LB1626092A02	Choke	1	(UO-1)
L4		LN07W350VL01		1	(UO-1)
L5		LN08W200L6		1	(UO-1)
L6		LB162609VU03	Choke	1	
			Tanses		
T1		VLT0327	SIF Oscillaotr	1	
T2		BRNA010V		1	
			Connectors		
P1		VJP1143	5P	1	
PJ		PNJA002E	Pin Jack	1	

Panasonic
MATSUSHITA ELECTRIC

Printed in Japan

ORDER NO. VRD-8206-099

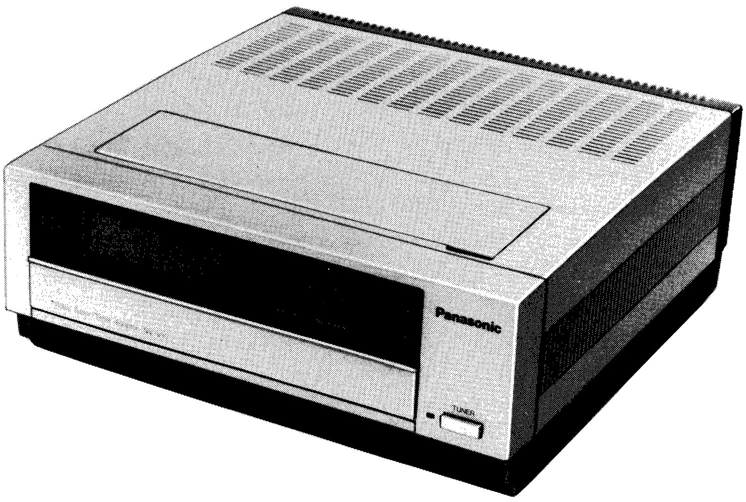
Service Manual

Electronic Tuner/Timer Unit

Vol. 5

Panasonic VHS

NV-V10 -E -B -EO



SPECIFICATIONS

Power Source:	NV-V100E, EO: 220V NV-V10B: 240V AC, 50/60Hz
Power Consumption:	Approx. 43 watts
Television System:	CCIR: 625 lines, 50 fields PAL colour signal
Timer:	14 day/4-programme timer with 1-hour battery back-up system
Input:	NV-V10E VHF ch. 2—12. UHF ch. 21—69. NV-V10B UHF ch. 21—69. NV-V10EO VHF ch. E2—S3 (Low) M1—U9 (High) 75Ω unbalanced (DIN)
Output:	Video: (11P connector) 1.0Vp-p, 75Ω unbalanced Audio: (11P connector) 130mVp-p, 2.2kΩ unbalanced
Weight:	3.4kg
Dimensions:	232(W) x 95(H) x 261(D) mm

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

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[Timer, Timer Display, Switch, Selector, Selector Sub, IR Receiver & Back Up] 5-27
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FEATURES

1. **16 station voltage synthesizer electronic tuner**
   The tuner is automatically tuned in to broadcasting station by using the search buttons.
2. **16 channel up-down selector channel indicator**
   When pressing the up or down button, you can easily find the desired channel.
3. **Recording TV programmes and unattended recording.**
   The built-in tuner of the unit enables you to record TV programmes with the NV-100 Portable Video Cassette Recorder. The built-in programmable timer permits unattended recording of up to 4 programmes. It can be preset 2 weeks in advance to record your favorite TV programmes. It turns the recorder on and off and changes channels automatically. All you have to do is to set the timer, the recording will start and stop on schedule no matter where you are.
4. **Recording while watching another programme.**
   The tuner permits you to record a programme on one channel while watching a different programme on TV.
5. **Battery back-up**
   In the event of a power failure for less than 1 hour the programmed timer memory will be retained.

IMPORTANT

"Unauthorized recording of copyrighted television programmes, films, video tapes and other materials may infringe on the rights of copyright owners and be contrary to copyright laws."

PRECAUTIONS

- Before trying to operate the unit, make sure that the Timer Rec Switch is OFF.
- Do not block or cover the ventilation slots on the top, rear, and bottom of the unit, especially by soft material such as cloth or paper.
- Use this unit horizontally and do not place anything heavy on the unit, e.g. Portable Video Cassette Recorder etc.
- Do not attempt to disassemble the tuner. There are no user serviceable parts inside.

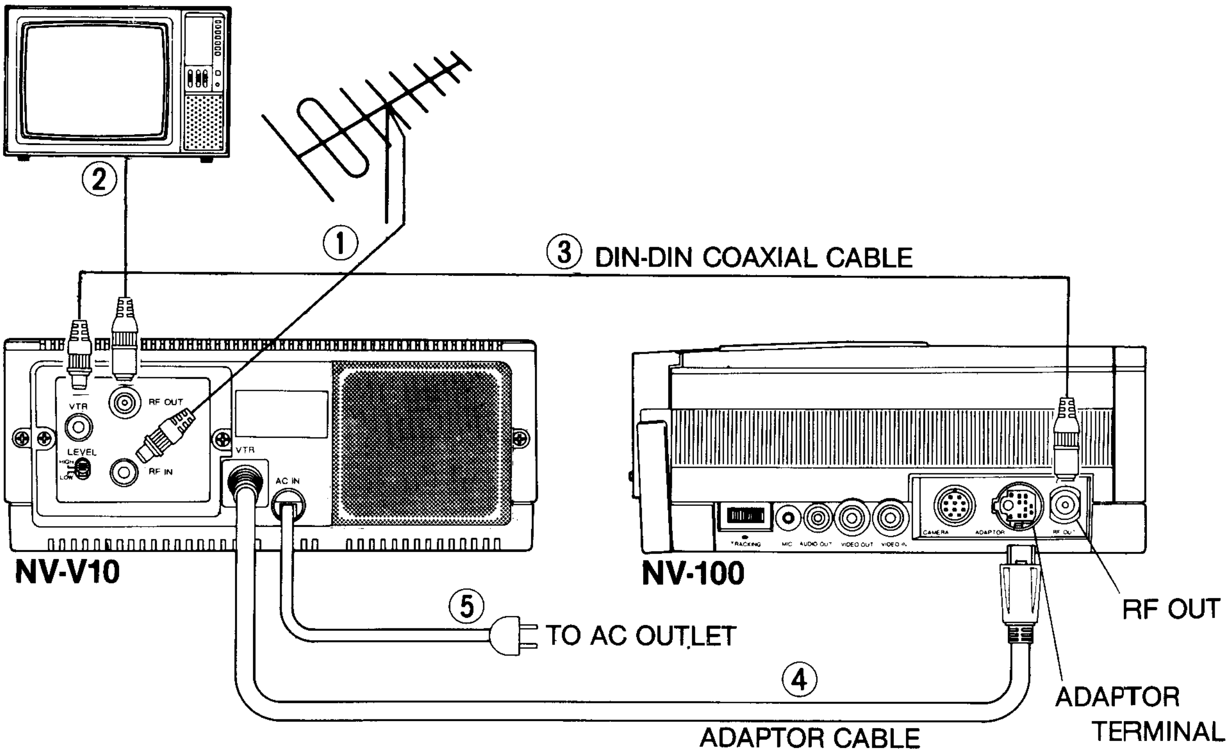
CAUTION:

The NV-V10 is made for exclusively use with the NV-100 Portable Video Cassette Recorder.

WARNING:

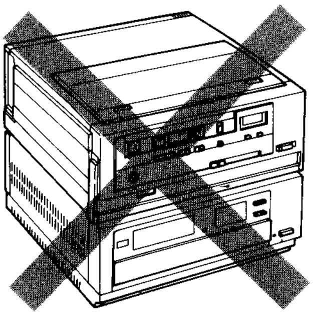
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

INSTALLATION


②
①
③ DIN-DIN COAXIAL CABLE
VTR
RF OUT
LEVEL
HIGH
LOW
RF IN
VTR
AC IN
NV-V10
NV-100
TRACKING
MIC
AUDIO OUT
VIDEO OUT
VIDEO IN
CAMERA
ADAPTOR
RF OUT
⑤ TO AC OUTLET
RF OUT
④
ADAPTOR CABLE
ADAPTOR TERMINAL

① Connect the external antenna to RF IN of the unit.
② Connect the TV to RF OUT of the unit.
③ The RF OUT of the recorder to VTR of the unit with the DIN-DIN Coaxial Cable supplied with the recorder.
④ Connect the Adaptor Cable to ADAPTOR TERMINAL of the recorder.
⑤ Plug in the unit.

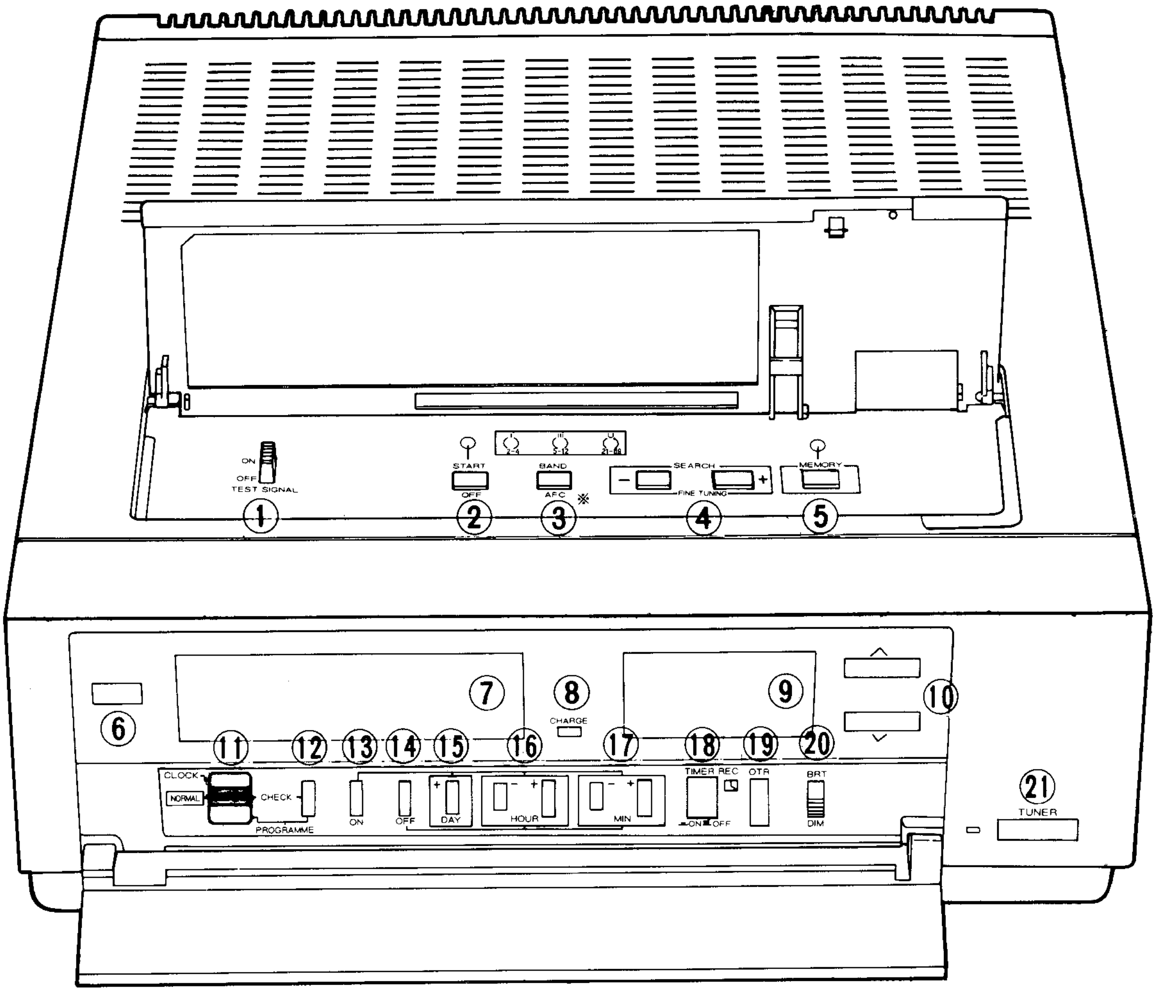
Do not place the NV-100 portable video cassette recorder on top of the unit for use.



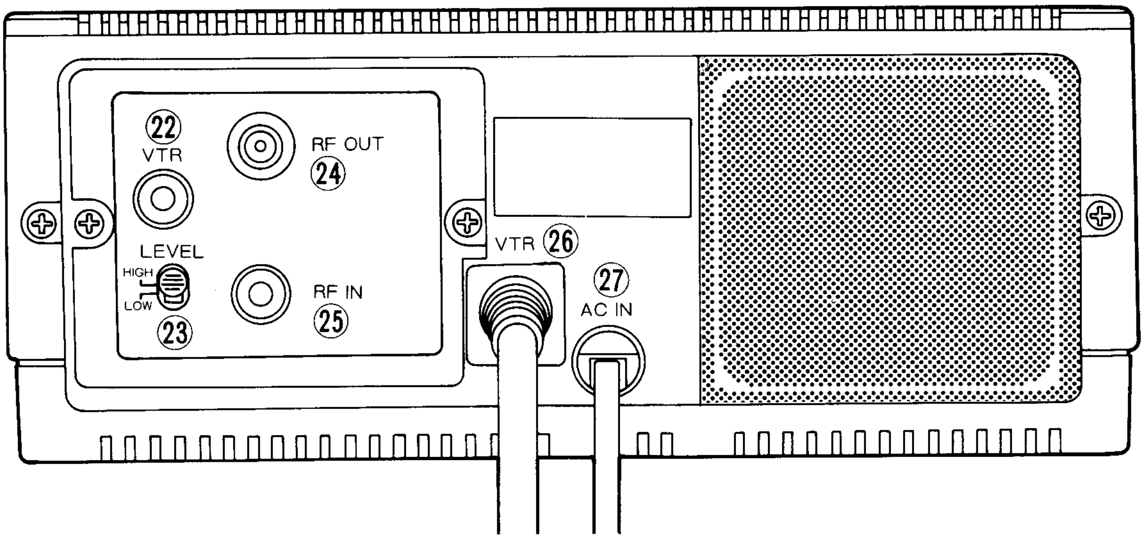
- Keep the unit away from the radio.

CONTROLS AND COMPONENTS

Top and FRONT


ON
OFF
TEST SIGNAL
①
START
OFF
②
I
2-4
III
5-12
U
21-68
BAND
AFC
③
※
SEARCH
FINE TUNING
−
+
④
MEMORY
⑤
⑥
⑦
⑧
CHARGE
⑨
⑩
⑪
⑫
⑬
⑭
⑮
⑯
⑰
⑱
⑲
⑳
CLOCK
NORMAL
CHECK
PROGRAMME
ON
OFF
DAY
HOUR
MIN
TIMER REC
ON
OFF
OTR
BRT
DIM
㉑
TUNER

REAR


㉒
VTR
RF OUT
㉔
LEVEL
HIGH
LOW
㉓
RF IN
㉕
VTR ㉖
㉗
AC IN

※ ③ The NV-V10-B (for the U.K.) does not come with a band button and band display lamps.

TOP and FRONT

① **Test Signal Switch [TEST SIGNAL]**
This switch should normally be set to "OFF". To adjust the playback image (RF output channel): To tune the VHS RF output channel on TV, move this switch to "ON".

② **Start Button [START]**
This button is for the function of the SEARCH/FINE TUNING.
ON......... for BAND, SEARCH operation
OFF....... for AFC, FINE Tuning operation
When the SEARCH is working, the Start Button Lamp is flashing.

③ **BAND/AFC Button [BAND/AFC]**
BAND....... for selecting the position of UHF, VHF (high or low).
AFC.......... Locks onto signal to keep the picture clear at all times.
The NV-V10-B (for the U.K.) does not come with a band button and band display lamps.

④ **SEARCH/FINE TUNING Button [SEARCH/FINE TUNING]**
SEARCH............... for tuning in the tuner to the broadcasting station.
FINE TUNING.......for fine adjustment.

⑤ **Memory Button [MEMORY]**
This function memorizes the station selected by the Start Button operation.

⑥ **Remote Control Signal Receiver Window**
Receive the signal from the Wireless Remote Control. (NV-A17 optional).

⑦ **Programmable Clock/Timer**
This built-in programmable clock/timer constantly displays the time of day and is used for timer recording.

⑧ **Charging Indicator Lamp [CHARGE]**
Lights up while the battery pack of the recorder is being charged.
When charging has been completed, this lamp will go off. Charging will not occur during operation of the recorder therefore, this lamp will not light up when the recorder is ON.

⑨ **Channel, CH. Lock, AFC Indicator**
Indicates the CH. Lock, AFC, the channel number.
The CH. Lock is displayed on the channel display pannel when the recording or OTR is working.
The AFC is displayed on the channel display pannel when the AFC is working.

⑩ **Channel Up and Down Buttons**
Press to change the channel upwards or downwards.

⑪ **Mode Selector Switch**
"CLOCK" position is for setting Digital Clock for Time of Day. "NORMAL" position is for normal clock operation, and for check on programmed times.
"PROGRAMME" position is for presetting of unattended recording.

⑫ **PROGRAMME Button [PROGRAMME]**
Used to select a programme number to be set for unattended recording and to confirm the contents of preset programmes.

⑬ **ON Button [ON]**
Push to preset a starting time for recording.

⑭ **OFF Button [OFF]**
Push to preset a stop time for recording.

⑮ **DAY Buttons [DAY]**
For setting of the Day.
" + " Button will advance days.

⑯ **HOUR Buttons [HOUR]**
For setting of the Hour.
" + " Button will advance hours and " – " Button will retrace hours.

⑰ **Min Buttons [MIN]**
For setting of the Minute.
" + " Button will advance minutes and " – " Button will retrace minutes.

⑱ **Timer Rec Switch [TIMER REC]**
Push after programming unattended recording.
When TIMER REC is ON, you CANNOT operate the unit and the recorder manually.

⑲ **One Touch Timer Recording Button [OTR]**
Enables you to do impromptu recordings at any time. Just select the channel and push the OTR Button for 30, 60, 90 or 120 minutes of recordings.

⑳ **Dim/Bright Switch [BRT/DIM]**
Changes the brightness of the Digital Clock.

㉑ **Operation Switch [TUNER]**
Turns the unit on and off.

REAR

㉒ **VTR Connector [VTR]**
For connection with RF OUT of the recorder.

㉓ **RF Signal Level Switch [LEVEL]**
Used to attenuate the reception of the VHF and/or UHF antenna signals.
If the reception is normal, set to "HIGH". If the signal strength is high and the stripped pattern appears at the top of the picture on TV, set to "LOW".

㉔ **RF Output Connector [RF OUT]**
For connection to the antenna terminal (COAXIAL type) of TV with the DIN-DIN Coaxial Cable supplied with the recorder.

㉕ **RF Input Connector [RF IN]**
For connection with the external antenna.

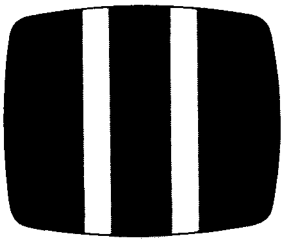
㉖ **Adaptor Cable [VTR]**
Connect to Adaptor Terminal of the recorder.

㉗ **AC Power Cord [AC IN]**
Connect to a AC outlet.

RF OUTPUT CHANNEL

An RF converter built into the Portable Recorder NV-100 will allow you to play back the tape on a TV set through an unused broadcast channel. For this purpose your TV must be tuned to the RF Output channel in the following way.

1. Make connection as shown in the section "INSTALLATION".
2. Turn TV on and select a spare channel that will be used for playback, in some cases this may be marked A/V or VCR.
3. Turn on the unit and the recorder.
4. Set TEST SIGNAL to "ON" and adjust TV until the pattern shown below is received.



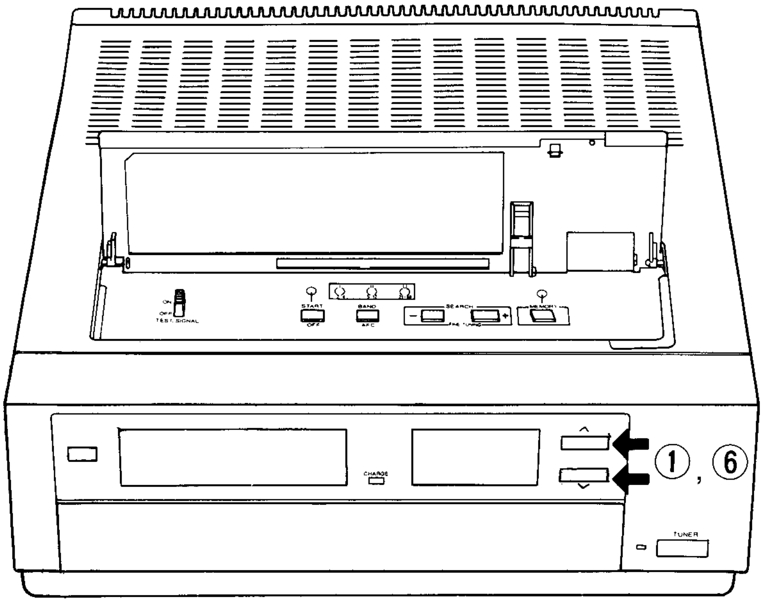
5. Set TEST SIGNAL to "OFF". Your TV is now ready to receive the RF output signal from the recorder.

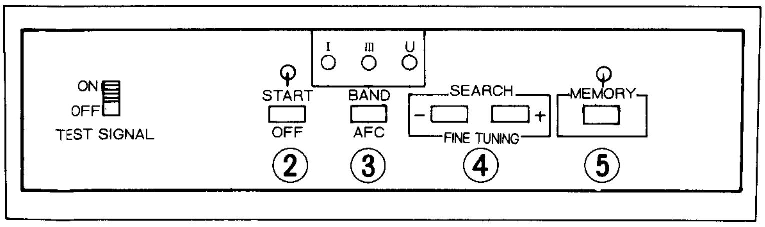
Note:
When TEST SIGNAL is in "ON", the striped pattern will be seen on TV. When it is in "OFF", you can use the unit normally.

TUNER SETTING

- Your NV-V10 can receive up to 16 TV stations. The tuner can be received any channel within the range of channels as shown in the table.

	VHF		UHF
	I	III	U
NV-V10-B	——	——	21 —— 69
NV-V10-E	Band I 2 —— 4	Band III 5 —— 12	Band IV/V 21 —— 69
NV-V10-EO	E2 —— S3	M1 —— U9	21 —— 69





- Connect the deck (NV-100) and TV set to the tuner, switch on the power and set the Timer Rec button to OFF. Turn TV Tuner and Recorder ON.

① Select the channel.
② Press the Start Button. The corresponding lamp lights up.
③ The band can be selected by pressing the BAND Button. Push this button once to advance to the next band. (The corresponding lamp lights up.)

- It may be faster to press the Band Button to select the band than to press the Search Button.
- The NV-V10-B (for the U.K.) does not come with a band button. Therefore, this operation is not necessary if you have purchased this particular model.

④ The broadcasting stations are automatically tuned in by pressing the (+) or (−) SEARCH Button once. (The START Lamp will flash on and off during Search).
When the tuner is tuned in to the station, the START Lamp changes to a lighted state, the AFC Indicator appears on the channel display panel and the search operation is concluded.
If the station received is not the desired one, press the (+) or (−) SEARCH Button again.
When the (+) button is pressed, " ▬ " on the channel display increases one by one to 6 pieces (to high channel range).
When the (−) button is pressed, " ▬ " on the channel display panel decreases one by one to 0 (to low channel range).

⑤ The tuner is tuned in to the desired station, push the MEMORY Button to memorize it.

⑥ To set the next channel, select the Channel Up and Down Switch and then repeat steps ③ through ⑤

⑦ After all the desired channels have been set, push the Start Button OFF. The lamp goes OFF and the AFC Indicator appear on the channel display panel.

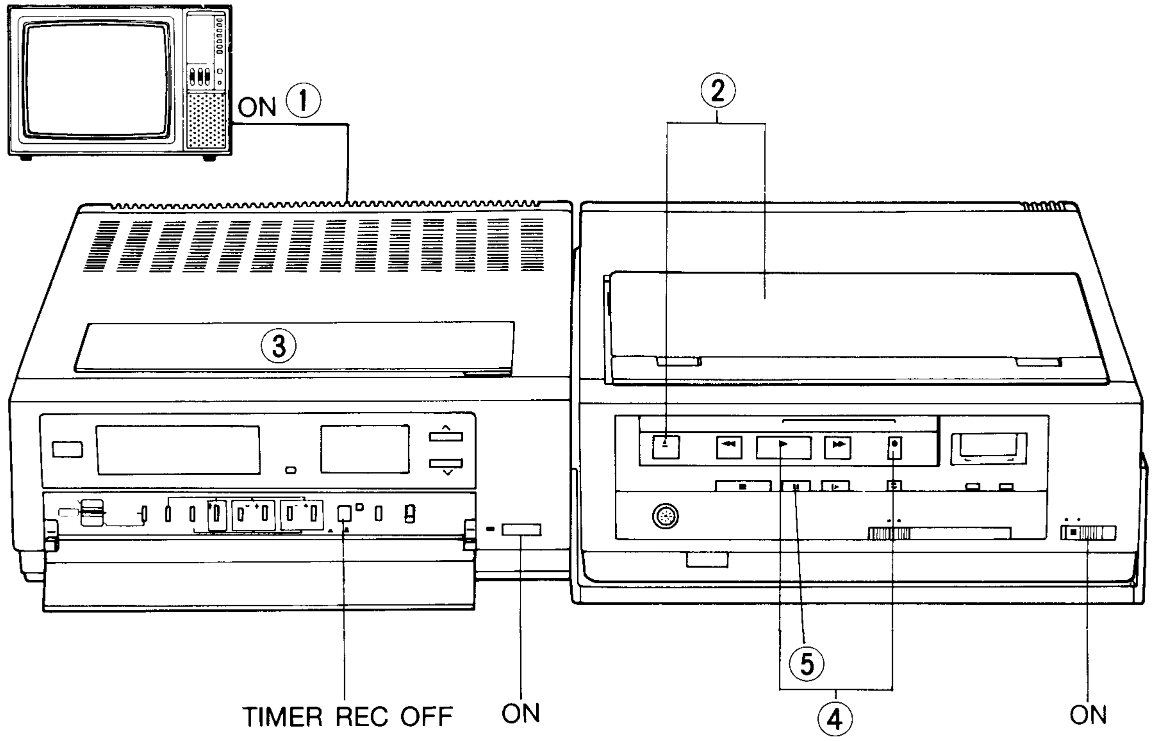
TO FINE TUNE THE CHANNEL

If it should be necessary to fine tune a channel to obtain a clear picture, adjust the fine tuning manually as follows.

1. Check that the START Button is set to OFF.
2. Press and hold " + " or " − " FINE TUNING Button - the AFC indicator on the channel display panel will disappear - until the best possible picture is obtained. Release the Button when you get a clear picture.
3. After the fine tuning is completed, push the MEMORY Button to lock the fine tuning of channel.

- If you wish to restore the AFC function, set the AFC Button to ON.

RECORDING TV PROGRAMMES

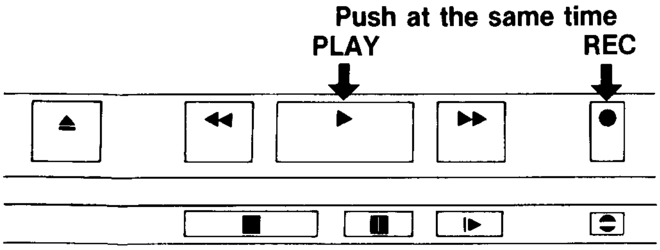


① Turn the TV on and tune it to the RF Output channel.

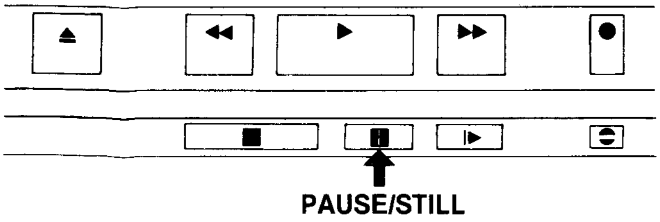
② Insert a cassette.

③ Select a programme to be recorded and confirm proper reception on TV.

④ Push REC together with PLAY.



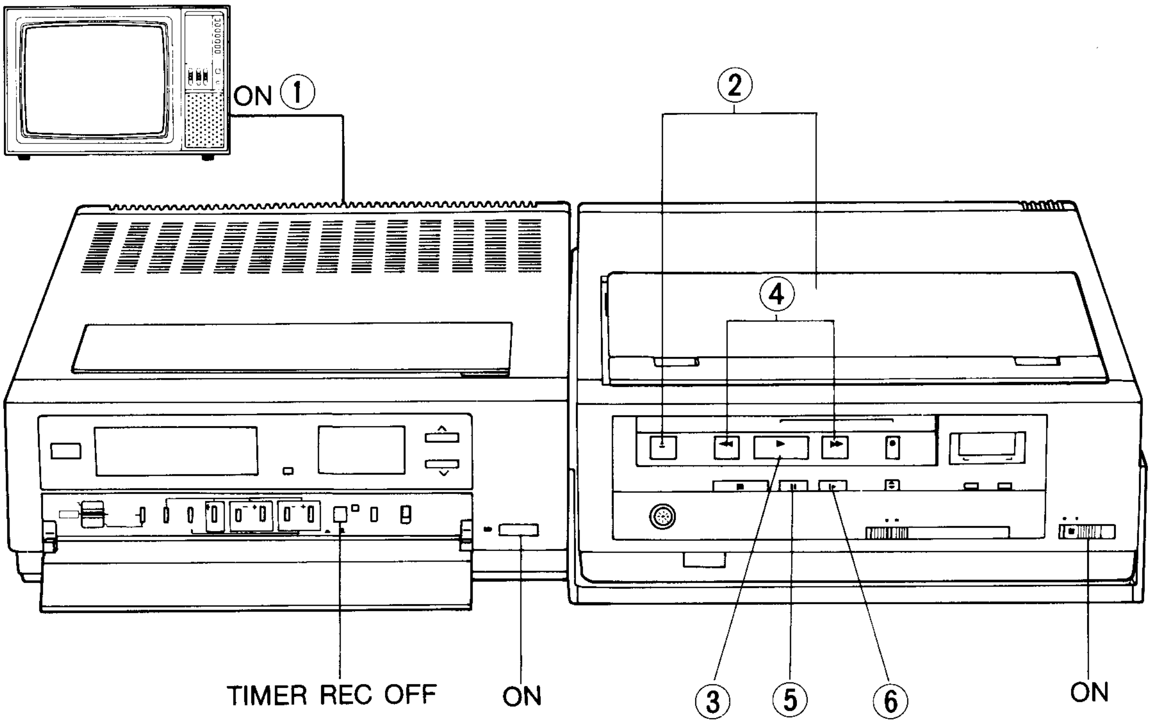
⑤ Push PAUSE/STILL to stop the tape temporarily if you wish to avoid recording unwanted material of a TV programme.



Notes:

- Do not keep the recorder in the pause mode in excess of 4 minutes at a time. The recorder will automatically release after about 5 minutes and stop.
- When joining a new recording to already recorded material from the stop mode, first play back the last part of the already recorded material in order to confirm its end point, and then start recording after stopping the tape temporarily.
- If the cassette tab is missing no recording can be performed.
- Connect the Wired Remote Controller (NV-A13, optional) to REMOTE to operate Rec, Rec-Pause mode from a distance.
  Wireless Remote Controller (NV-A17, optional) can also operate the unit from a distance.
- If you wish to view another programme while you are recording, select the channel to be viewed on TV.

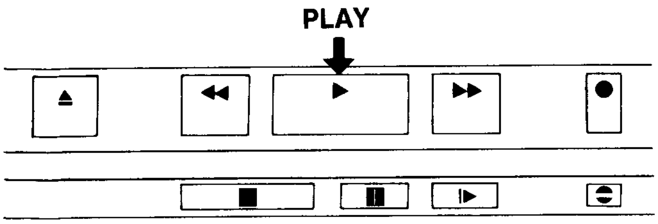
PLAYBACK


ON ①
②
④
TIMER REC OFF
ON
③ ⑤ ⑥
ON

① Turn the TV on and tune it to the RF Output channel.

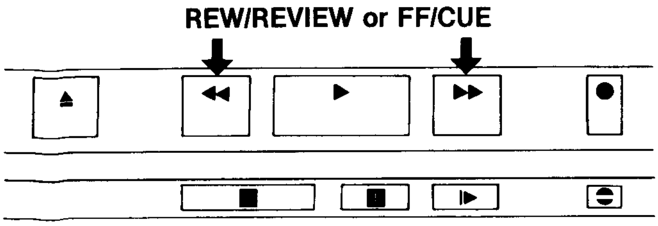
② Insert a cassette.

③ Push PLAY.

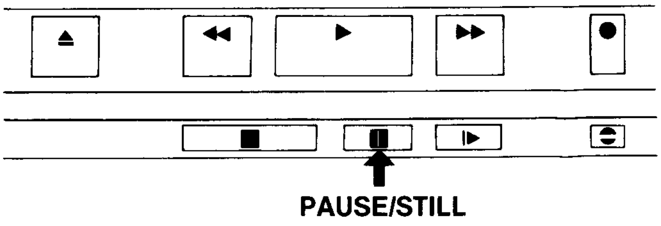


● Use CUE/REVIEW, PAUSE/STILL or SLOW if you wish to view multi-motion pictures.

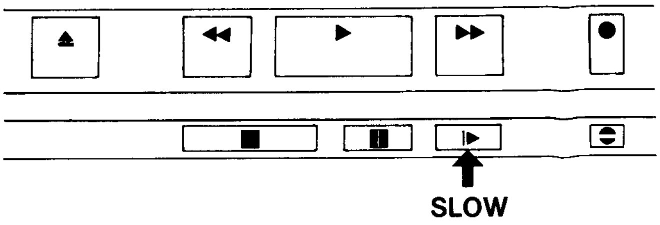
④ Press REVIEW or CUE to rapidly locate a particular segment. (about 5 times normal speed).


REW/REVIEW or FF/CUE

⑤ Push PAUSE/STILL to view a still-frame picture.

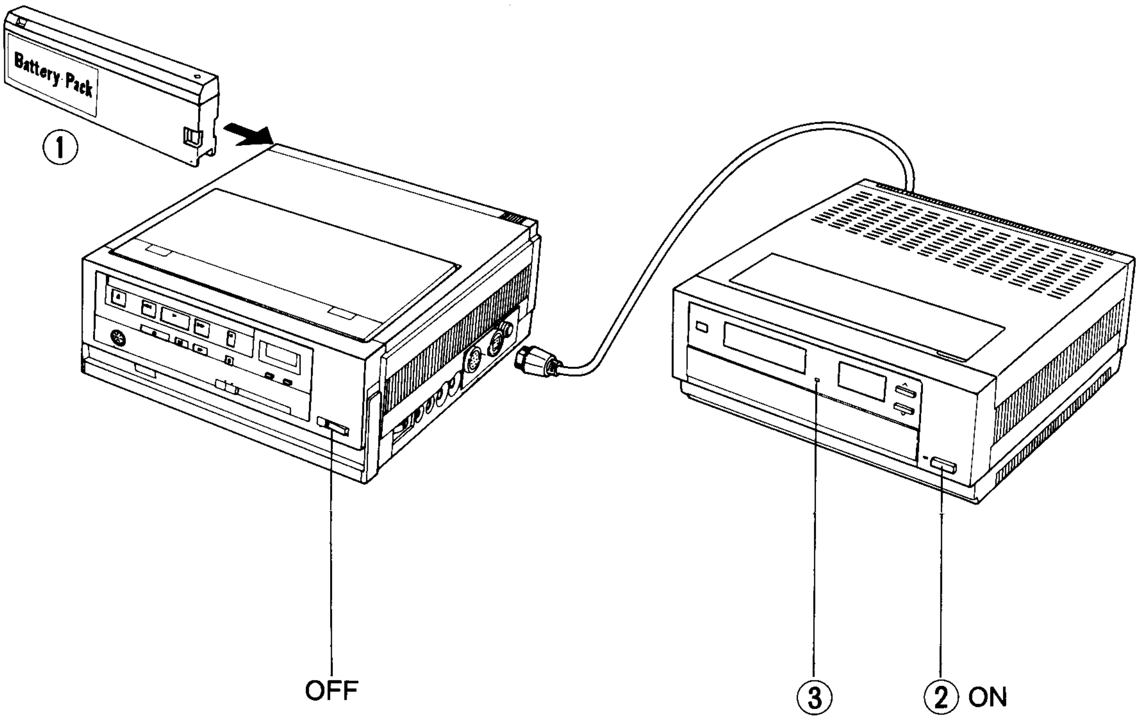

PAUSE/STILL

⑥ Push SLOW to view a fine-slow picture. (about 1/5 normal speed)



The Remote Controller (option) — Wireless remote controller (NV-A17), Wired remote controller (NV-A13) — can operate the multi-motion playback from a distance.

BATTERY CHARGING



- Turn the unit on and set TIMER REC off.

- Set the both unit power off and connect the Adaptor-Cable of the Tuner to the Adaptor Terminal of the recorder.

① Insert the battery pack into the battery compartment of the recorder.

② Turn the unit on, and the battery pack in the recorder will start to charge.

③ The CHARGE Lamp will light up during charging.

Notes:

- The CHARGE lamp will usually go off in 2 hours, but charging time varies according to the battery pack's condition (the suitable ambient temperature is 10°C ~ 30°C). Continue charging for 2 hours after the CHARGE lamp goes off to prolong the life of the battery pack.
- Overcharging will make the battery pack's life shorter. Do not keep charging more than 24 hours.
- The useful operation time of the battery pack will gradually decrease after several discharges and recharges. The battery pack is no longer serviceable if the operation time is too short even after a sufficient charge.

ELECTRICAL ADJUSTMENT PROCEDURES

This section provides complete electrical adjustment procedure which may be required for electronic circuits of ELECTRONIC TUNER/TIMER UNIT.

1. Test Equipment

   To perform the electrical adjustments completely, the following equipments are required.
   1. DVM (Digital Volt Meter)
      Voltage Range: 0.01 - 50V
   2. Frequency Counter
      Frequency Range: 0 - 10MHz
   3. DC Voltage Supply: (0 - 20V)
   4. Dual-Trace Oscilloscope
      Voltage Range: 0.05 - 50V/Div.
      Frequency Range: DC - 10MHz
      Probes: 10:1, 1:1
   5. TV Channel Signal Generator
   6. DC Amperemeter
      Current Range: 0 - 10A
   7. VIF Sweep & Trap Generator
   8. Spectrum Analyzer
   9. Color TV Receiver or Monitor
   10. Attenuator (-0dB - -50dB)
   11. Monitor Scope
   12. Non-metalic Screwdriver (Using TV Demodulator Section) and Plastic Tip Driver.

2. Adjustment Procedures

   These adjustment procedures consist of the following sections.
   1. Power Supply Section
   2. TV Demodulator Section (NV-V10E/EO)
   3. TV Demodulator Section (NV-V10B)
   4. Timer Section

2-1. Power Supply Section

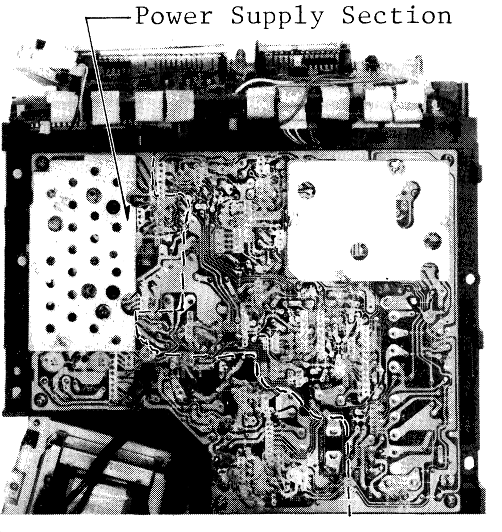

Power Supply Section

Fig. E1

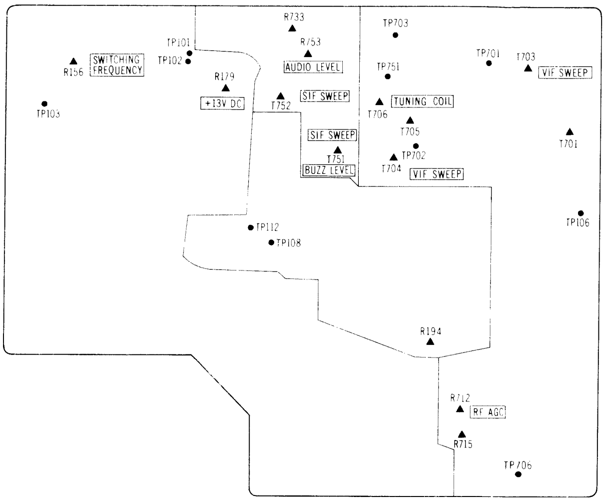

R733
TP703
TP101
R753
TP701
T703
R156
SWITCHING FREQUENCY
TP102
AUDIO LEVEL
TP751
VIF SWEEP
R179
+13V DC
T752
SIF SWEEP
TUNING COIL
TP103
T706
T705
SIF SWEEP
T751
BUZZ LEVEL
TP702
T704
VIF SWEEP
T701
TP112
TP108
TP106
R194
R712
RF AGC
R715
TP706

Fig. E2

2-1-1. Switching Frequency Adjustment

Test Point: Q157 (C)
Adjustment: R156

1. Connect the 10.8Ω Resistor between pin 5 and pin 6 of P105.
2. Connect the oscilloscope to the collector of Q157.
3. Adjust R156 so that the frequency is 25kHz ± 0.5kHz.

2-1-2. +13V DC Adjustment

Test Point: TP102
Adjustment: R179

1. Connect the 10.8Ω Resistor between pin 5 and pin 6 of P105.
2. Connect the D.V.M to TP102.
3. Adjust R179 so that the voltage is 13.0 ± 0.1V DC.

2-2. TV Demodulator Section

Model No. NV-V10E

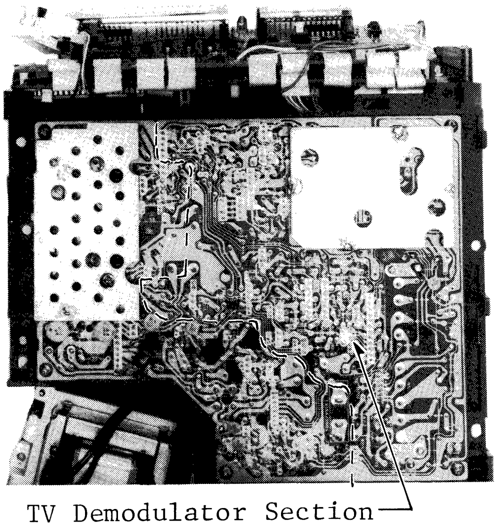

TV Demodulator Section

Fig. E3

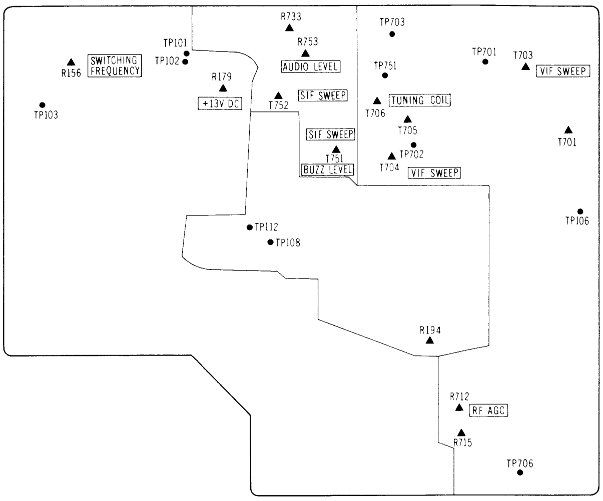

R733
R753
AUDIO LEVEL
TP703
TP101
TP102
SWITCHING FREQUENCY
R156
R179
+13V DC
TP103
T752
SIF SWEEP
TP751
TP701
T703
VIF SWEEP
TUNING COIL
T706
T705
SIF SWEEP
T751
BUZZ LEVEL
TP702
T704
VIF SWEEP
T701
TP112
TP108
TP106
R194
R712
RF AGC
R715
TP706

Fig. E4

This section provides complete electrical adjustment procedures which may be required for TV demodulator circuit.

Test Equipment

To make adjustments completely, following equipments are required.

1. VIF Sweep Generator
   ....38.9MHz
2. SIF Sweep Generator
   ....5.5MHz ± 150kHz
3. Digital Volt Meter
4. Oscilloscope

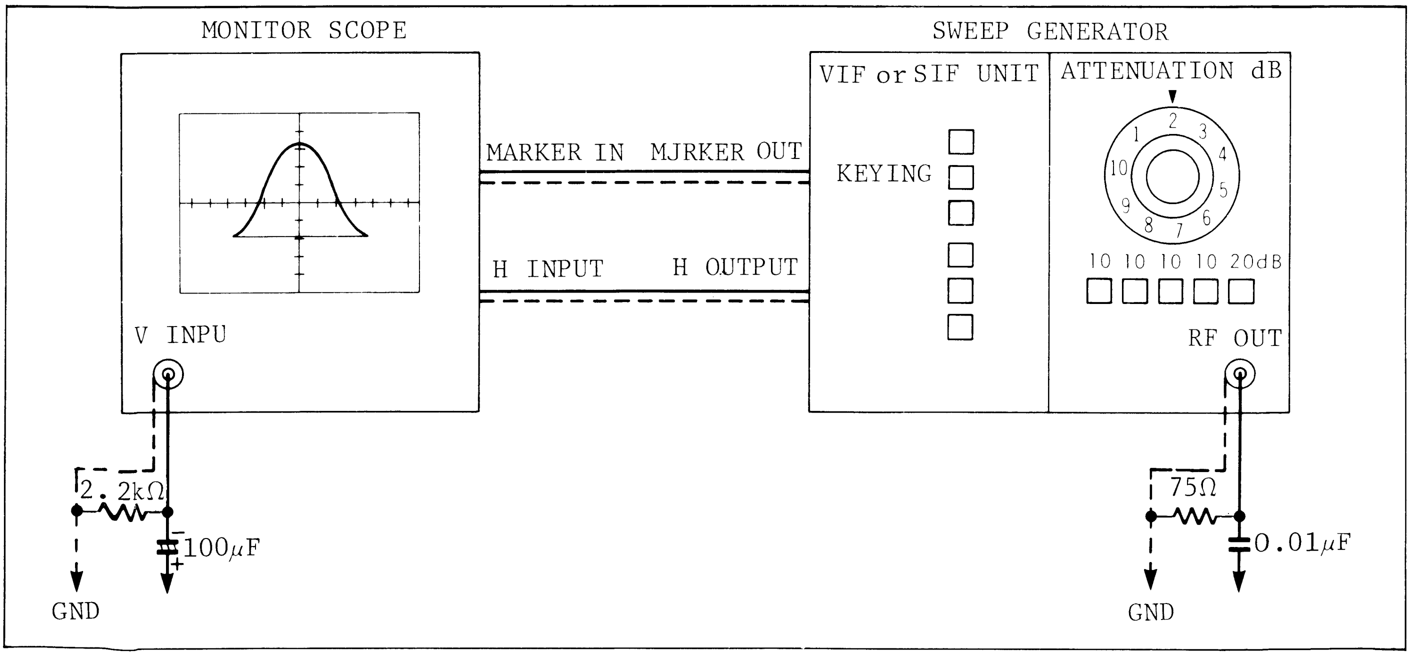

MONITOR SCOPE
SWEEP GENERATOR
VIF or SIF UNIT
ATTENUATION dB
MARKER IN
MJRKER OUT
KEYING
1
2
3
4
5
6
7
8
9
10
H INPUT
H OUTPUT
10 10 10 10 20dB
V INPU
RF OUT
2.2kΩ
100μF
GND
75Ω
0.01μF
GND

Fig. E5 Connection of Measuring Equipment

2-2-1. 38.3MHz Tuning Coil Adjustment

Test Point: TP706
Adjustment: T706, T705

1. Connect the H-Out of the VIF Sweep Generator to the H-In of the scope.
2. Connect the Marker-Out of the VIF Sweep Generator to the Marker-In or Z Terminal of the Scope.
3. Connect the output of the VIF Sweep Generator to TP702.
4. Connect the scope to TP706.
5. Supply the DC Voltage (4 ∿ 5V) to TP701 so that the noise level on the sweep waveform becomes minimum.
6. Turn T706 2 turns clockwise or counterclockwise.
7. Adjust the output of the VIF Sweep Generator so that the sweep wave becomes 0.1Vp-p.
8. Adjust T705 so that the marker position of 38.9MHz becomes maximum as shown in Fig. E6.

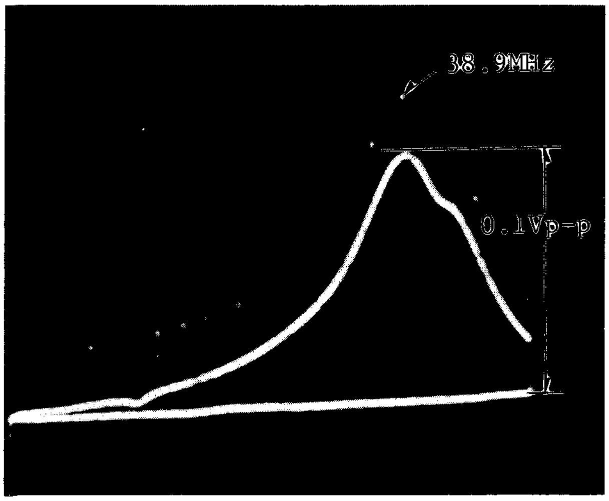


Fig. E6.

9. After this completed adjustment, adjust T706 so that 38.9MHz marker position is shown in Fig. E7.

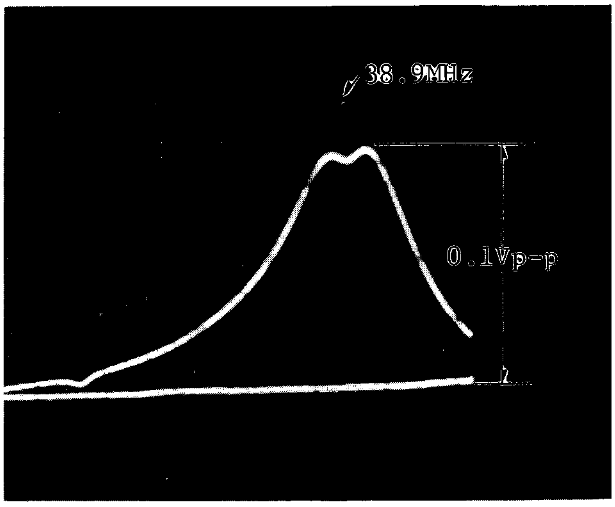


Fig. E7.

2-2-2. VIF Tuner Converter Coil Adjustment

Test Point: TUNER TP
Adjustment: TUNER CONVERTER COIL

1. Connection of measuring equipments is shown in Fig. E5.
2. Set the channel selector to the VHF High position (V_H) and set the tunning button so that the voltage at pin 1 of P7001 (BT Voltage) becomes 10V ± 0.5 Volts DC.
3. Connect the DC Voltage Regurator (6.5V ± 0.2V) to AFC terminal of Tuner Unit.
4. Connect the jumper wire between TP703 and GND.
5. Connect the output of VIF Sweep Generator to Tuner test point.
6. Connect the scope to TP707.
7. Adjust the attenuator of VIF Sweep Generator so that the amplitude of output waveform becomes 0.1Vp-p.
8. Adjust the tuner converter coil so that the amplitude at 34.47MHz marker position and 38.9MHz marker position are same.

2-2-3. VIF Sweep Adjustment

Test Point: TP706
Adjustment: T704, T703

1. Connection of measuring equipments is the same as in the 38.9 MHz Turning Coil Adjustment.
2. Set the Channel Selector to the VHF High position (VH) and see the tunning button so that the voltage at pin 1 of P7001 becomes 10 ± 0.5 Volts DC.
3. Connect the jumper wire between TP703 (RF AGC) and ground.
4. Connect the 100Ω resistor between TP704 and TP705.
5. Connect the scope to TP706.
6. Connect the output of VIF Sweep Generator to tuner test point.
7. Adjust the output of the VIF Sweep Generator so that the level of VIF waveform becomes 1.0Vp-p.
8. Release 20dB from the attenuator of the Sweep Generator.
9. Set DC Voltage Regurator to TP701, and supply the Voltage so that the level of VIF waveform becomes 1.0Vp-p.
10. Adjust T704 so that the attenuation of the 33.4MHz trap becomes maximum.
11. Adjust T703 (A) so that the attenuation of the 40.4MHz trap becomes maximum.
12. Adjust T701 and (C)(D)(E)(F) of T703 so that the Sweep output waveform becomes as shown Fig. E8.

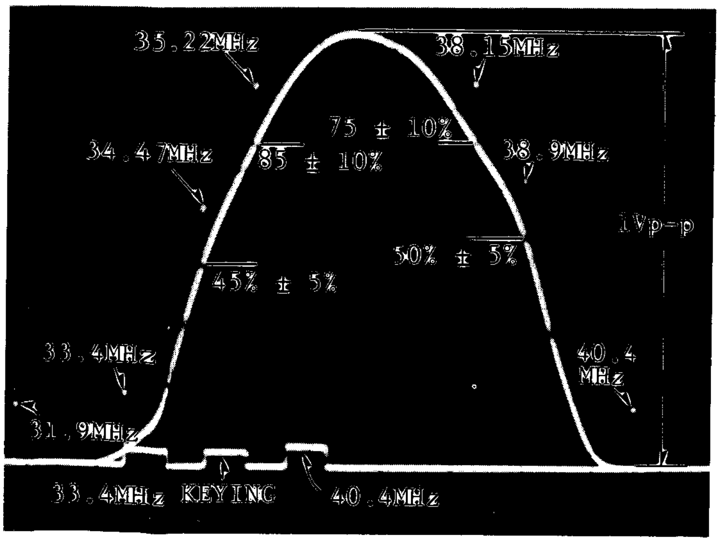


Fig. E8. VIF Waveform

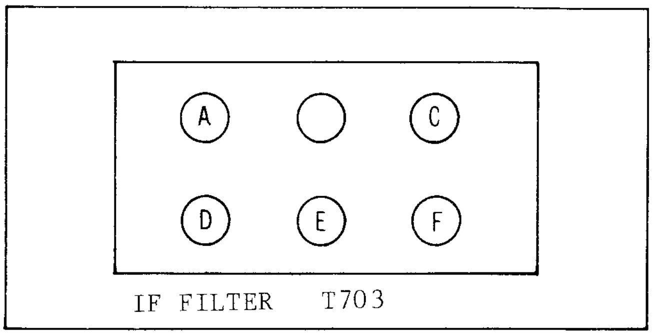


Fig. E9

2-2-4. RF AGC Adjustment

Test Point: TP703
Adjustment: R712

1. Set the AFC SW to ON.
2. Tune in VHF colour bar signal.
3. Set the input level of electric field to 65 ± 2dB. (Using the Attenuator and Spectrum Analyzer)
4. Connect the D.V.M to TP703.
5. Turn the VHF AGC (R712) fully counterclockwise from component side. (Set to the maximum voltage)
6. Then slowly turn the R712 till just before the Voltage drop.
7. Change the input electric field from 65dB to 68dB.
8. Confirm that the voltage at TP703 is dropped more than 1.5 Volts.
9. Next tune in UHF colour bar signal.
10. Set the input level at electric field to 60 ± 2dB.
11. Turn the UHF AGC (R715) fully counterclockwise from component side. (Set to the maximum voltage)
12. Then slowly turn the R715 till just before the voltage drop.
13. Change the input electric field from 60dB to 63dB.
14. Confirm that the voltage at TP703 is dropped more than 1.5 Volts.

2-2-5. SIF Sweep Adjustment

Test Point: TP752
Adjustment: T752, T751

1. Connect the H-Out of the SIF Sweep Generator to the H-In of the scope.
2. Connect the Marker-Out of the SIF Sweep Generator to the Marker-In or Z-terminal of the scope.
3. Connect the oscilloscope to the output of the SIF Sweep Generator and set the sweep output to 6mVp-p.
4. Connect the output of the SIF Sweep Generator to TP751.
5. Connect the scope to TP752.
6. Connect the jumper wire between TP701 and GND.
7. Adjust T752 and T751 so that the amplitude at 5.5MHz is maximum.
8. Adjust T752 so that the 5.5MHz trap becomes maximum.

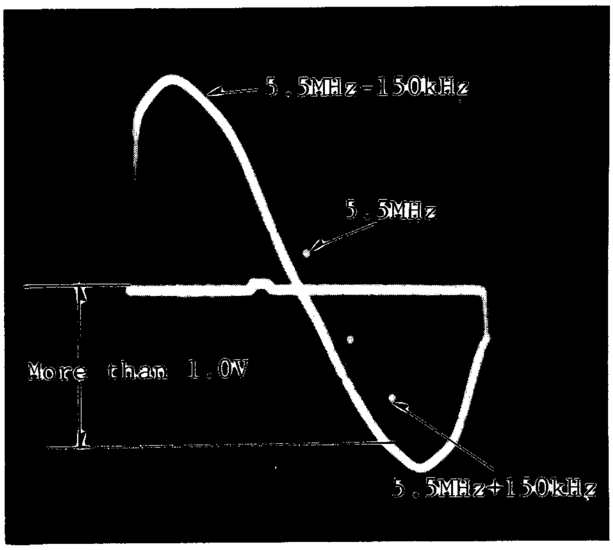


Fig. E10. SIF Waveform

2-2-6. Audio Level Adjustment

Test Point: Pin 13 of one touch connector
Adjustment: R753

1. Set the AFC SW to ON.
2. Tune a audio signal of 1kHz with 30% modulated frequency. (VHF)
3. Connect the oscilloscope to pin 13 of one touch connector (2.2kΩ BALANCE).
4. Adjust R753 so that the level is 240 ± 50mVp-p.

2-2-7. Buzz Level Adjustment

Test Point: Pin 13 of one touch connector
Adjustment: T751

1. Set the AFC SW to ON.
2. Tune a Philips test pattern with NO audio. (VHF)
3. Connect the oscilloscope to pin 13 of one touch connector. (2.2kΩ BALANCE).
4. Adjust T751 so that Buzz level is minimum.

2-3. TV Demodulator Section

Model No. NV-V10B

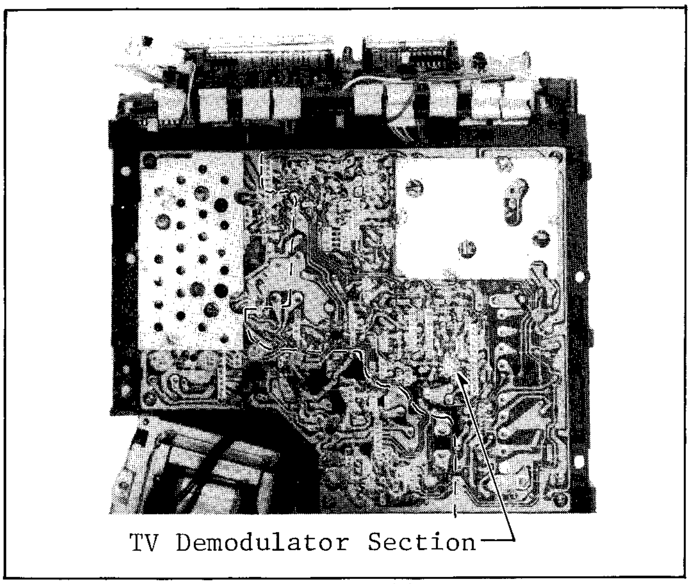

TV Demodulator Section

Fig. E11

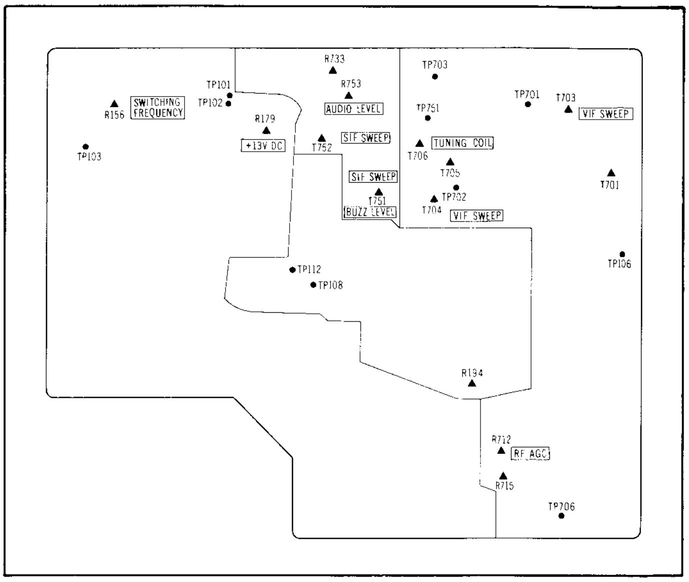

R733
R753
AUDIO LEVEL
TP703
TP101
TP102
R156
SWITCHING FREQUENCY
R179
+13V DC
T752
SIF SWEEP
SIF SWEEP
T751
BUZZ LEVEL
TP751
TUNING COIL
T706
T705
TP702
T704
VIF SWEEP
TP701
T703
VIF SWEEP
T701
TP103
TP112
TP108
TP106
R194
R712
RF AGC
R715
TP706

Fig. E12

This section provides complete electrical adjustment procedures which may be required for TV demodulator circuit.

Test Equipment

To make adjustments completely, following equipments are required.

1. VIF Sweep Generator
   ..... 39.5MHz
2. SIF Sweep Generator
   ..... 6.0MHz ± 150kHz
3. Digital Volt Meter
4. Oscilloscope

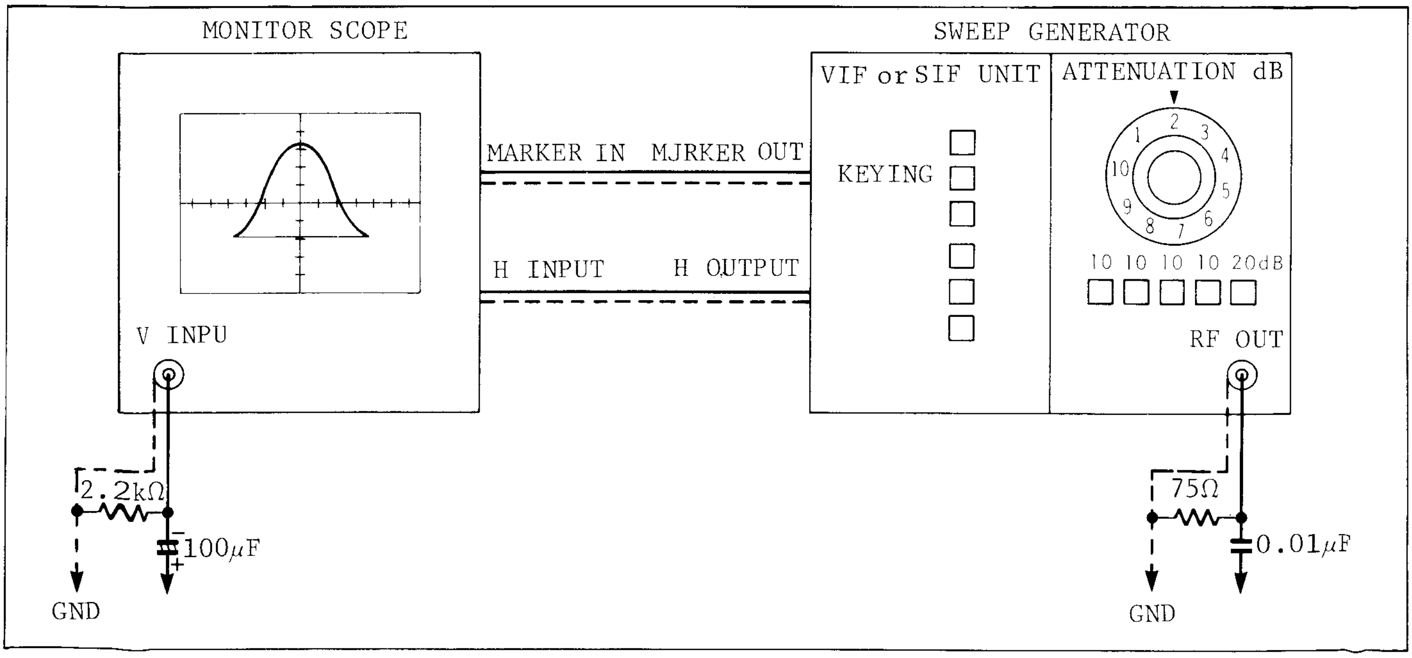

MONITOR SCOPE
SWEEP GENERATOR
VIF or SIF UNIT
ATTENUATION dB
MARKER IN
MJRKER OUT
KEYING
1
2
3
4
5
6
7
8
9
10
10 10 10 10 20dB
H INPUT
H OUTPUT
V INPU
RF OUT
2.2kΩ
100μF
GND
75Ω
0.01μF
GND

Fig. E13. Connection of Measuring Equipment

2-3-1. 39.5MHz Tuning Coil Adjustment

Test Point: TP706
Adjustment: T706, T705

1. Connect the H-Out of the VIF Sweep Generator to the H-In of the scope.
2. Connect the Marker-Out of the VIF Sweep Generator to the Marker IN or Z Terminal of the Scope.
3. Connect the output of the VIF Sweep Generator to TP702.
4. Connect the scope to TP706.
5. Supply the DC Voltage (4 ∿ 5V) to TP701 so that the noise level on the sweep waveform becomes minimum.
6. Turn T706 2 turns clockwise or counterclockwise.
7. Adjust the output of the VIF Sweep Generator so that the Sweep wave becomes 0.1Vp-p.
8. Adjust T705 so that the marker position of 39.5MHz becomes maximum as shown in Fig. E14.

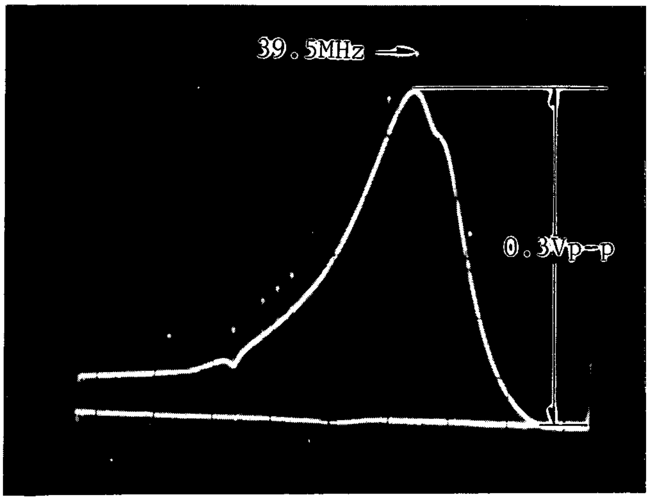


Fig. E14.

9. After this completed adjustment, adjust T706 so that 39.5MHz marker position is shown in Fig. E15.

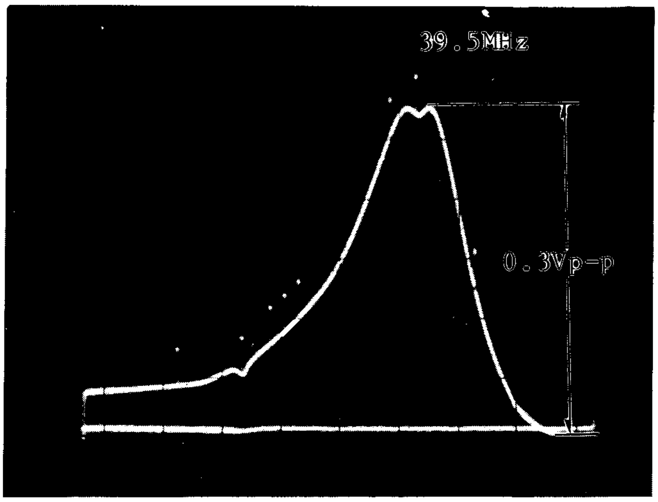


Fig. E15.

2-3-2. VIF Tuner Converter Coil Adjustment

Test Point: Tuner TP
Adjustment: Tuner Converter Coil

1. Connection of measuring equipments is shown in Fig. E13.
2. Set the channel selector to the VHF High position (V_H) and set the tunning button so that the voltage at pin 1 of P7001 (BT Votlage) becomes 11V ± 0.5Volts DC.
3. Connect the DC Voltage Regurator (6.5V ± 0.2V) to AFC terminal of Tuner Unit.
4. Connect the jumper wire between TP703 and GND.
5. Connect the output of VIF Sweep Generator to Tuner test point.
6. Connect the scope to TP707.
7. Adjust the attenuator of VIF Sweep Generator so that the amplitude of output waveform becomes 0.1Vp-p.
8. Adjust the tuner converter coil so that the amplitude at 35.07 MHz marker position and 39.5MHz marker position are same.

2-3-3. VIF Sweep Adjustment

Test Point: TP706
Adjustment: T704, T703

1. Connection of measuring equipments is the same as in the 39.5MHz Turning Coil Adjustment.
2. Set the Channel Selector to the VHF High position (VH) and set the tunning button so that the voltage at pin 1 of P7001 becomes 11 ± 0.5V DC.
3. Connect the jumper wire between TP703 (RF AGC) and ground.
4. Connect the 100Ω resistor between TP704 and TP705.
5. Connect the scope to TP706.
6. Connect the output of VIF Sweep Generator to tuner test point.
7. Adjust the output of the VIF Sweep Generator so that the level of VIF waveform becomes 1.0Vp-p.
8. Release 20dB from the attenuator of the Sweep Generator.
9. Set DC Voltage Regurator to TP701, and supply the Voltage so that the level of VIF waveform becomes 1.0Vp-p.
10. Adjust T704 so that the attenuation of the 33.5MHz trap becomes maximum.
11. Adjust T703 (A) so that the attenuation of the 41.5MHz trap becomes maximum.
12. Adjust T701 and (C)(D)(E)(G) of T703 so that the sweep output waveform becomes as shown Fig. E16.

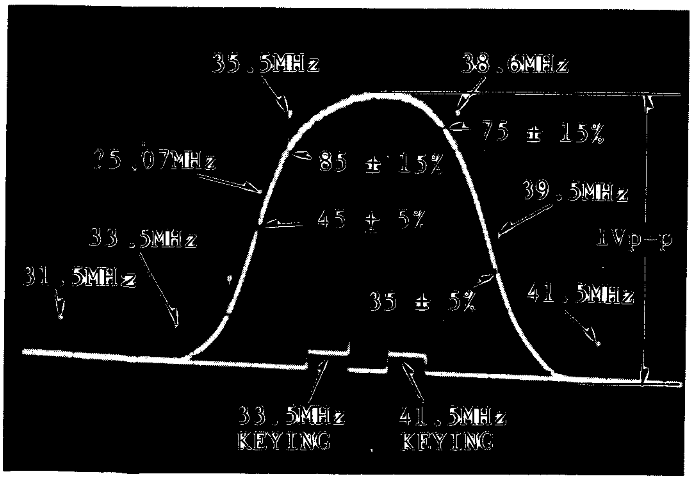


Fig. E16. VIF Waveform

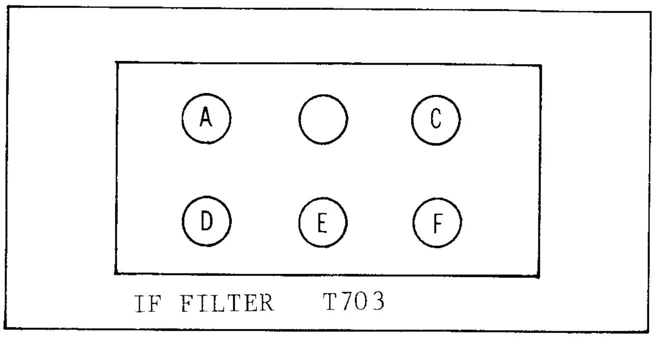


Fig. E17

2-3-4. RF AGC Adjustment

Test Point: TP703
Adjustment: R715

1. Set the AFC SW to ON.
2. Tune in UHF colour bar signal.
3. Set the input level of electric field to 60 ± 2dB.
   (Using the Attenuator and Spectrum Analyzer)
4. Connect the D.V.M to TP703.
5. Turn the UHF AGC (R715) fully counterclockwise from component side. (Set to the maximum voltage)
6. Then slowly turn the R715 till just before the Voltage drop.
7. Change the input electric field from 60dB to 63dB.
8. Confirm that the voltage at TP703 is dropped more than 1.5Volts.

2-3-5. SIF Sweep Adjustment

Test Point: TP752
Adjustment: T752, T751

1. Connect the H-Out of the SIF Sweep Generator to the H-In of the scope.
2. Connect the Marker-Out of the SIF Sweep Generator to the Marker-In or Z-terminal of the scope.
3. Connect the oscilloscope to the output of the SIF Sweep Generator and set the sweep output to 6 mVp-p.
4. Connect the output of the SIF Sweep Generator to TP751.
5. Connect the scope to TP752.
6. Connect the jumper wire between TP701 and GND.
7. Adjust T752 and T751 so that the amplitude at 6.0MHz is maximum.
8. Adjust T752 so that the 6.0MHz trap becomes maximum.

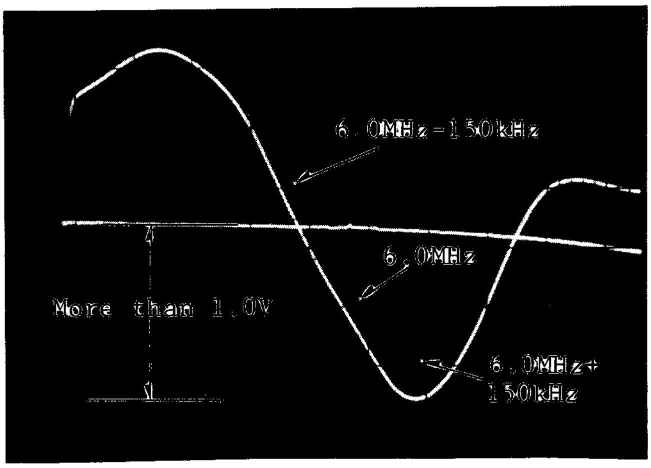


Fig. E18

2-3-6. Audio Level Adjustment

Test Point: Pin 13 of one touch
connector
Adjustment: R753

1. Set the AFC SW to ON.
2. Tune a audio signal of 1kHz with 30% modulated frequency. (UHF)
3. Connect the oscilloscope to pin 13 of one touch connector (2.2kΩ BALANCE).
4. Adjust R753 so that the level is 240 ± 50mVp-p.

2-3-7. Buzz Level Adjustment

Test Point: Pin 13 of one touch
connector
Adjustment: T751

1. Set the AFC SW to ON.
2. Tune a Philips test pattern with NO audio. (UHF)
3. Connect the oscilloscope to pin 13 of one touch connector. (2.2kΩ BALANCE).
4. Adjust T751 so that Buzz level is minimum.

2-3. Programmable Timer Section

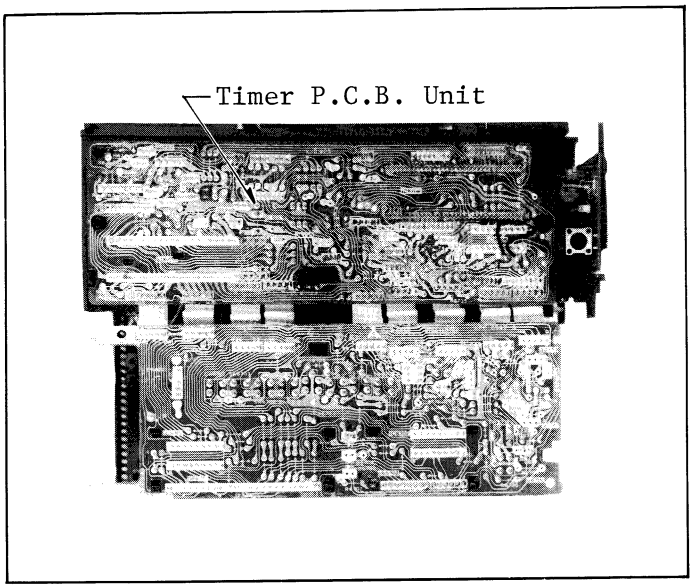


Fig. E19

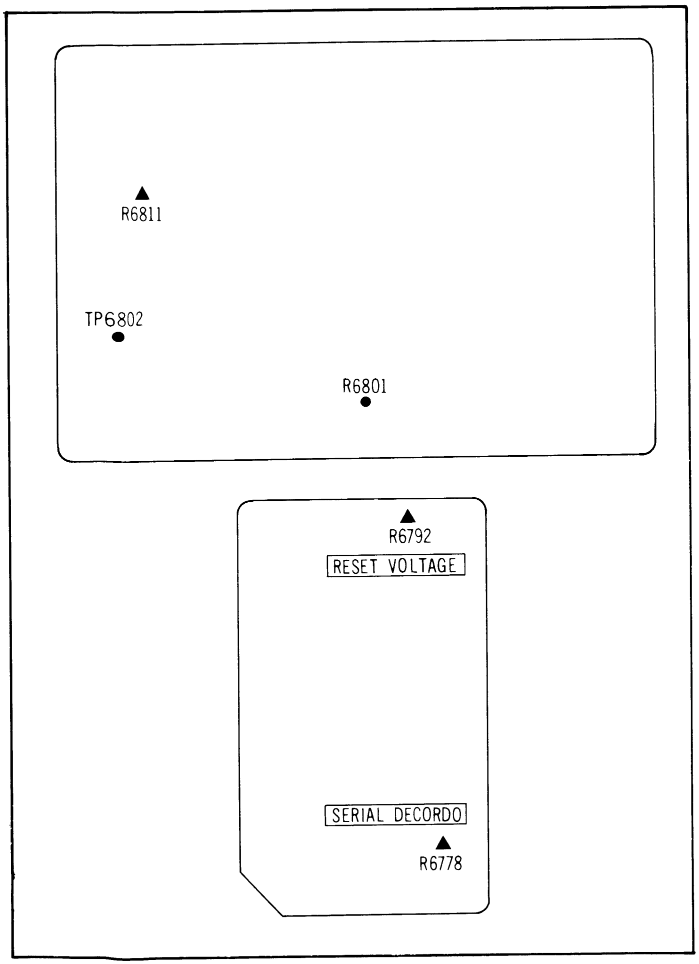


Fig. E20

2-3-1. Reset Voltage Adjustment

Test Point: Collector of Q6792
Adjustment: R6792

1. Disconnect the AC plug from the AC output.
2. Disconnect the connector P6703, P6705 and P6704.
3. Connect the 100kΩ Resister between the collector of Q6792 and emitter of Q6793.
4. Connect the D.V.M to the collector of Q6792.
5. Set the DC power Regurator to 4 ± 0.05V DC and connect it to the emitter of Q6793.
6. Connect the jumper wire between anode and cathode of D6793.
7. Turn the RESET (R6723) fully clockwise from component side.
8. Then slowly adjust R6723 counter-clockwise so that the read of D.V.M is suddenly changed. (The point is changed from the 3V over to the 1V down.)

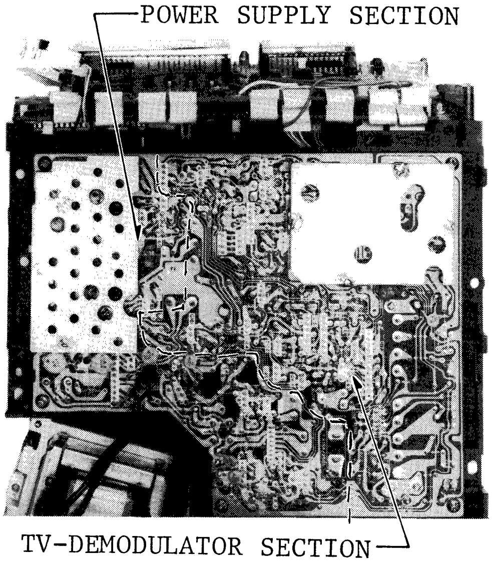
2-3-2. Serial Decorder Adjustment

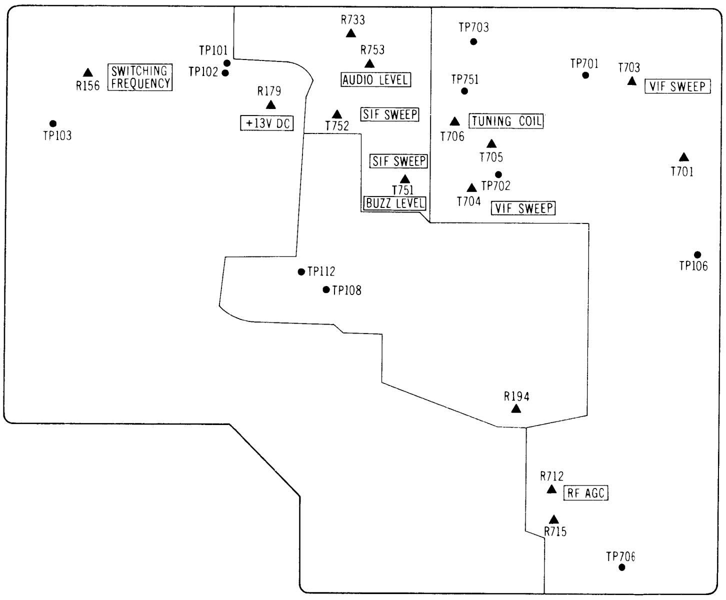
Test Point: Q6774 (C)
Adjustment: R6778

1. Disconnect P6703 and P6705.
2. Supply the DC Voltage 4.5 ± 0.05V to pin 2 of P6705.
3. Connect the D.V.M to the collector of Q6774.
4. Turn R6778 fully clockwise from component side.
5. Then slowly adjust R6778 counter-clockwise so that the read of D.V.M is suddenly changed.

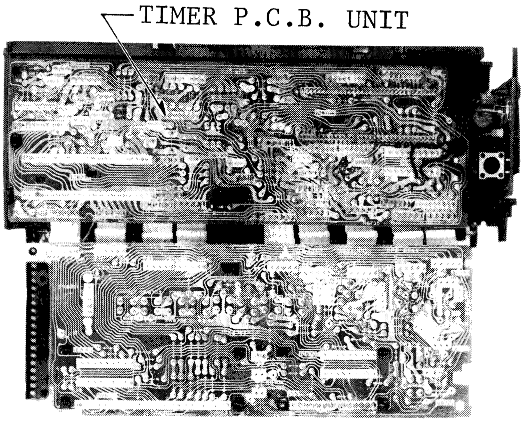
LOCATION OF TEST POINT & CONTROLS

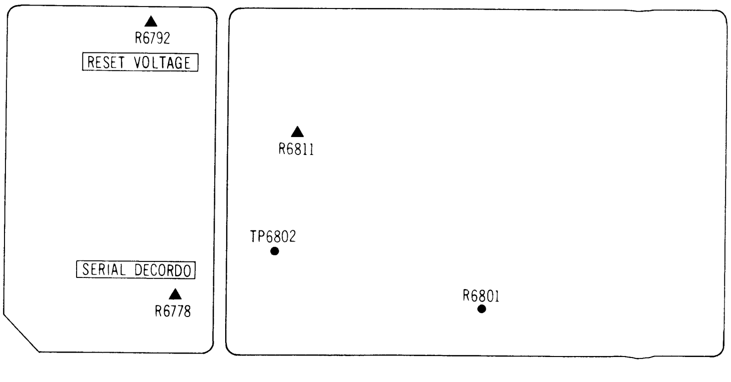
TV DEMODULATOR BOARD (NV-100E; VEP04114A)
(NV-100B; VEP04114B)
(NV-100EO; VEP04114C)


POWER SUPPLY SECTION
TV-DEMODULATOR SECTION


R156
SWITCHING FREQUENCY
TP101
TP102
TP103
R179
+13V DC
R733
R753
AUDIO LEVEL
T752
SIF SWEEP
SIF SWEEP
T751
BUZZ LEVEL
TP703
TP751
TUNING COIL
T706
T705
TP702
T704
VIF SWEEP
TP701
T703
VIF SWEEP
T701
TP106
TP112
TP108
R194
R712
RF AGC
R715
TP706

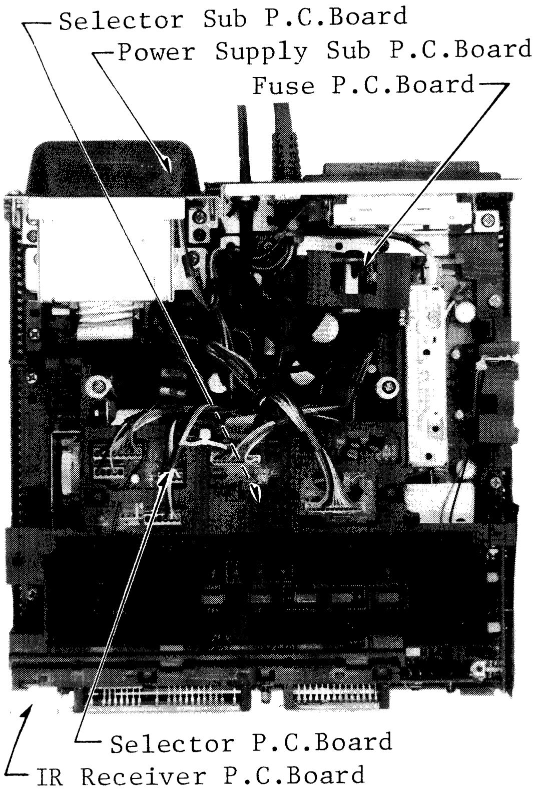
TIMER P.C.B. UNIT (NV-100E/EO; VEP4051A)
(NV-100B ; VEP4054B)


TIMER P.C.B. UNIT

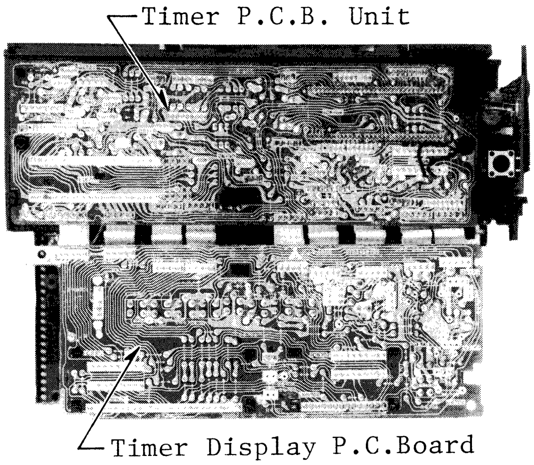

R6792
RESET VOLTAGE
SERIAL DECORDO
R6778
R6811
TP6802
R6801

CIRCUIT BOARD LAYOUT

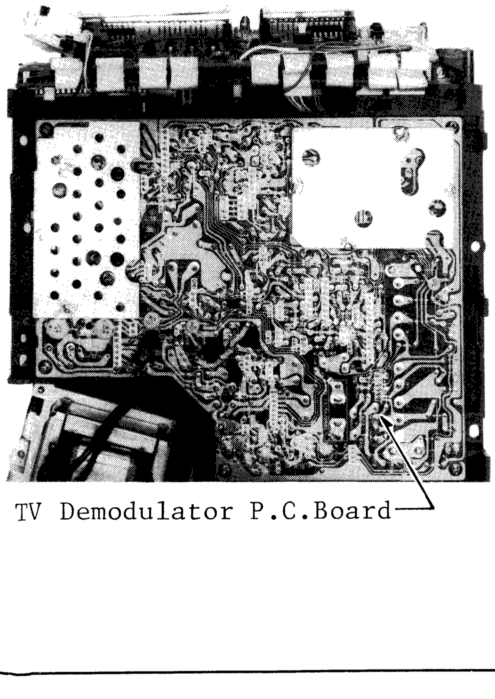
TOP VIEW


Selector Sub P.C.Board
Power Supply Sub P.C.Board
Fuse P.C.Board
Selector P.C.Board
IR Receiver P.C.Board

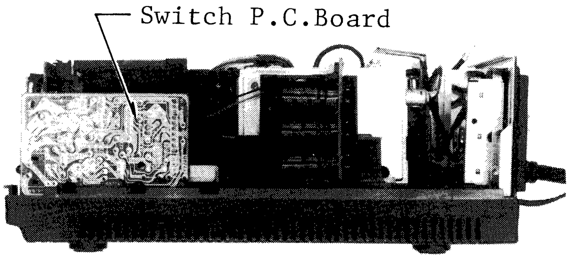
FRONT VIEW


Timer P.C.B. Unit
Timer Display P.C.Board

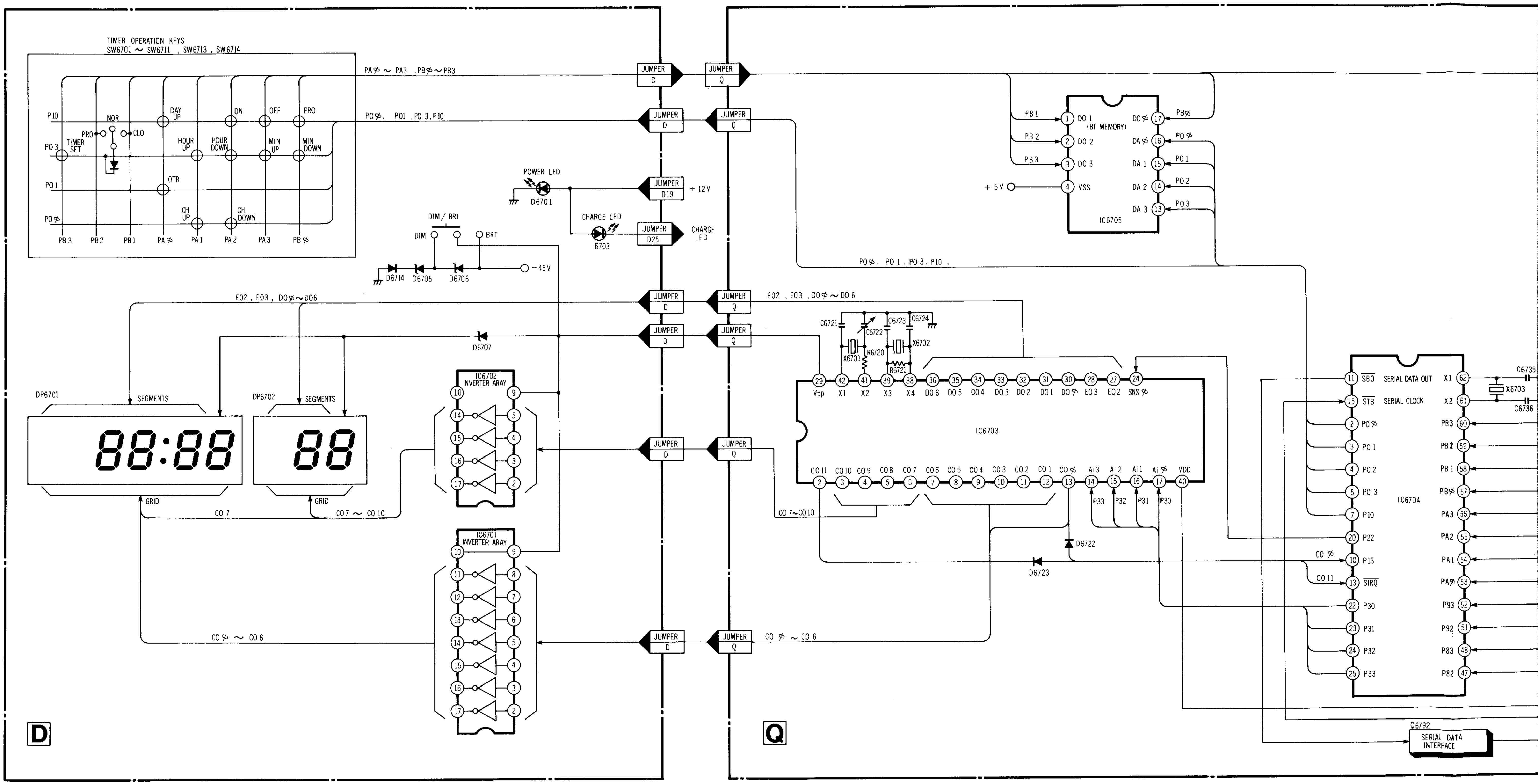
BOTTOM VIEW

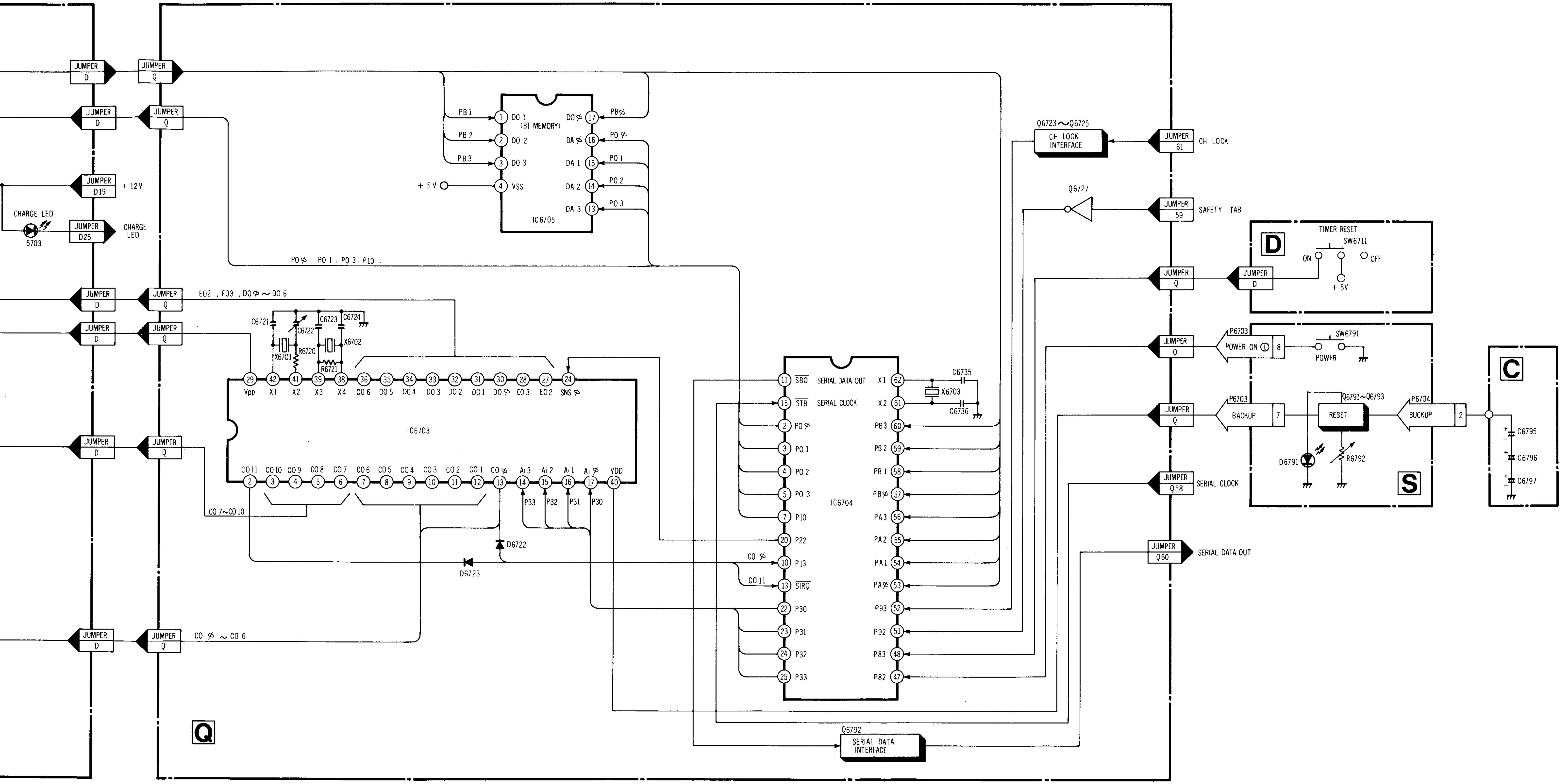

TV Demodulator P.C.Board

RIGHT VIEW

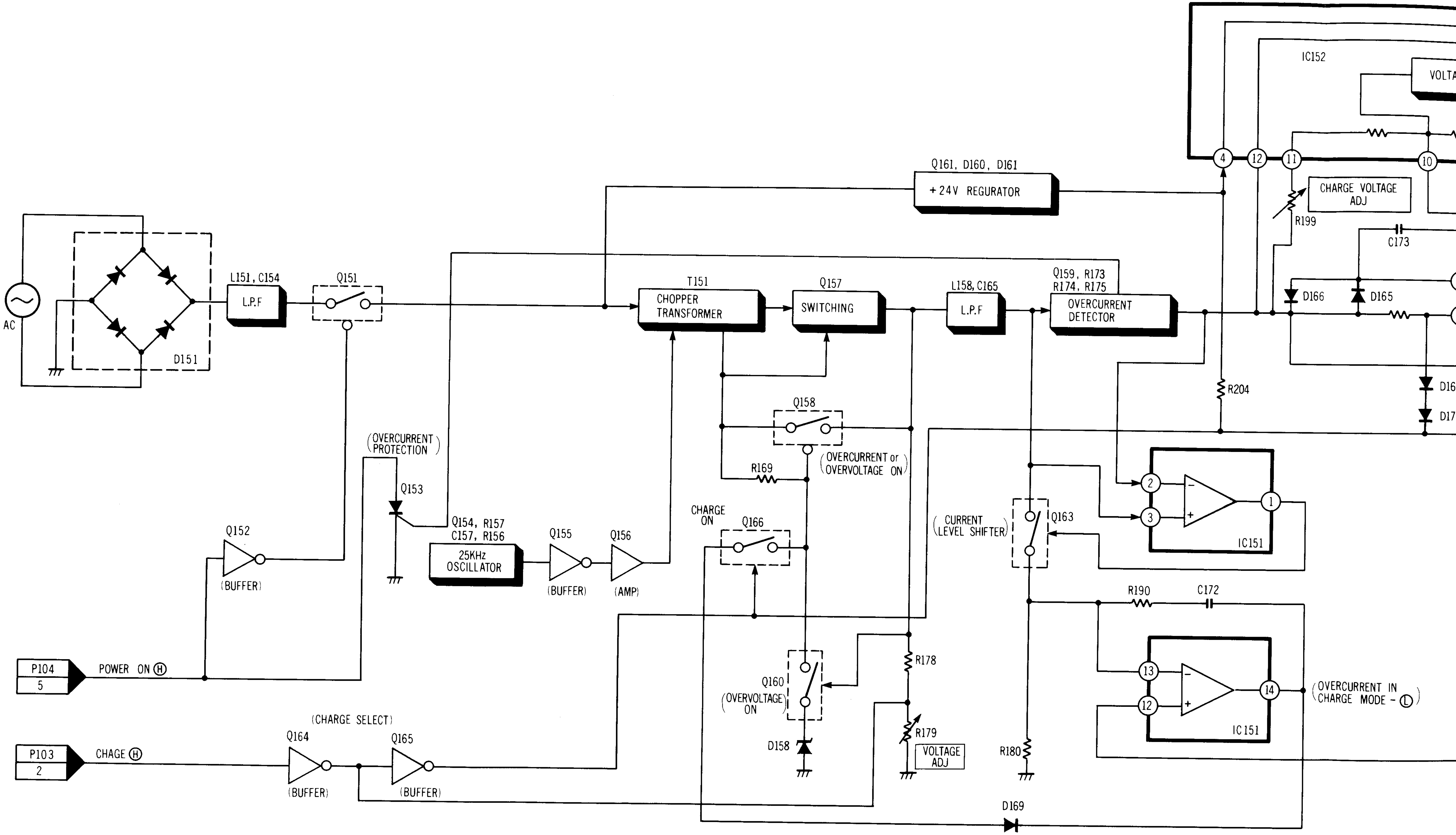

Switch P.C.Board

PROGRAMMABLE TIMER BLOCK DIAGRAM

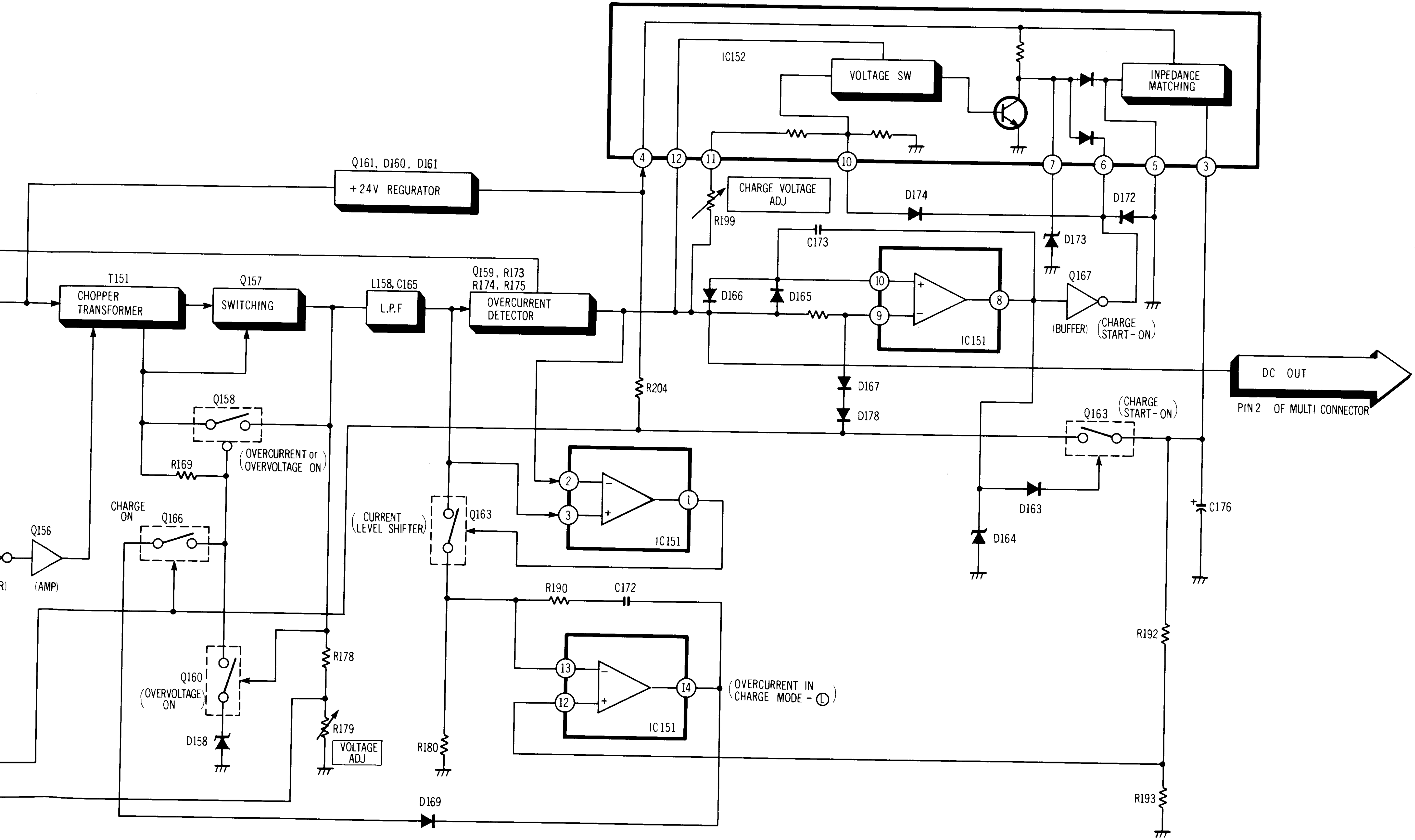

TIMER OPERATION KEYS
SW6701 ~ SW6711 , SW6713 , SW6714
P10
PO 3
PO 1
PO0
NOR
PRO
CLO
TIMER SET
DAY UP
ON
OFF
PRO
HOUR UP
HOUR DOWN
MIN UP
MIN DOWN
OTR
CH UP
CH DOWN
PB 3
PB 2
PB 1
PA 0
PA 1
PA 2
PA 3
PB 0
PA0 ~ PA3 , PB0 ~ PB3
PO0 , PO1 , PO 3 , P10
JUMPER D
JUMPER Q
POWER LED
D6701
JUMPER D19
+ 12V
CHARGE LED
6703
JUMPER D25
CHARGE LED
DIM / BRI
DIM
BRT
D6714
D6705
D6706
-45V
E02 , E03 , DO0 ~ D06
D6707
DP6701
SEGMENTS
88:88
GRID
DP6702
SEGMENTS
88
GRID
CO 7
CO 7 ~ CO 10
IC6702 INVERTER ARAY
IC6701 INVERTER ARAY
CO 0 ~ CO 6
D
PB 1
PB 2
PB 3
+ 5V
DO 1 (BT MEMORY)
DO 2
DO 3
VSS
DO 0
DA 0
DA 1
DA 2
DA 3
IC6705
PB0
PO 0
PO 1
PO 2
PO 3
PO0 , PO 1 , PO 3 , P10 ,
E02 , E03 , DO0 ~ DO 6
C6721
C6722
C6723
C6724
X6701
R6720
X6702
R6721
Vpp
X1
X2
X3
X4
DO 6
DO 5
DO 4
DO 3
DO 2
DO 1
DO 0
EO 3
EO 2
SNS 0
IC6703
CO 11
CO 10
CO 9
CO 8
CO 7
CO 6
CO 5
CO 4
CO 3
CO 2
CO 1
CO 0
Ai 3
Ai 2
Ai 1
Ai 0
VDD
P33
P32
P31
P30
CO 7~CO 10
D6722
D6723
CO 0 ~ CO 6
Q
SBO
SERIAL DATA OUT
STB
SERIAL CLOCK
PO 0
PO 1
PO 2
PO 3
P10
P22
CO 0
P13
CO 11
SIRQ
P30
P31
P32
P33
IC6704
X1
X2
PB3
PB2
PB1
PB0
PA3
PA2
PA1
PA0
P93
P92
P83
P82
C6735
X6703
C6736
Q6792
SERIAL DATA INTERFACE


JUMPER D
JUMPER Q
JUMPER D19
+12V
CHARGE LED
6703
JUMPER D25
CHARGE LED
PB1
PB2
PB3
+5V
DO 1 (BT MEMORY)
DO 2
DO 3
VSS
DO⌀
DA⌀
DA 1
DA 2
DA 3
PB⌀
PO⌀
PO1
PO2
PO3
IC6705
PO⌀, PO1, PO3, P10.
E02, E03, DO⌀～DO6
C6721
C6722
C6723
C6724
X6701
R6720
R6721
X6702
Vpp
X1
X2
X3
X4
DO6
DO5
DO4
DO3
DO2
DO1
DO⌀
EO3
EO2
SNS⌀
IC6703
CO11
CO10
CO9
CO8
CO7
CO6
CO5
CO4
CO3
CO2
CO1
CO⌀
Ai3
Ai2
Ai1
Ai⌀
VDD
P33
P32
P31
P30
CO7～CO10
D6722
D6723
CO⌀～CO6
SBO SERIAL DATA OUT
STB SERIAL CLOCK
PO⌀
PO1
PO2
PO3
P10
P22
P13
SIRQ
P30
P31
P32
P33
CO⌀
CO11
IC6704
X1
X2
PB3
PB2
PB1
PB⌀
PA3
PA2
PA1
PA⌀
P93
P92
P83
P82
C6735
X6703
C6736
Q6792
SERIAL DATA INTERFACE
Q6723～Q6725
CH LOCK INTERFACE
JUMPER 61
CH LOCK
Q6727
JUMPER 59
SAFETY TAB
TIMER RESET
SW6711
ON
OFF
+5V
D
P6703
POWER ON Ⓛ
8
SW6791
POWER
P6703
BACKUP
7
Q6791～Q6793
RESET
P6704
BUCKUP
2
D6791
R6792
S
C
C6795
C6796
C6797
JUMPER Q58
SERIAL CLOCK
JUMPER Q60
SERIAL DATA OUT
Q

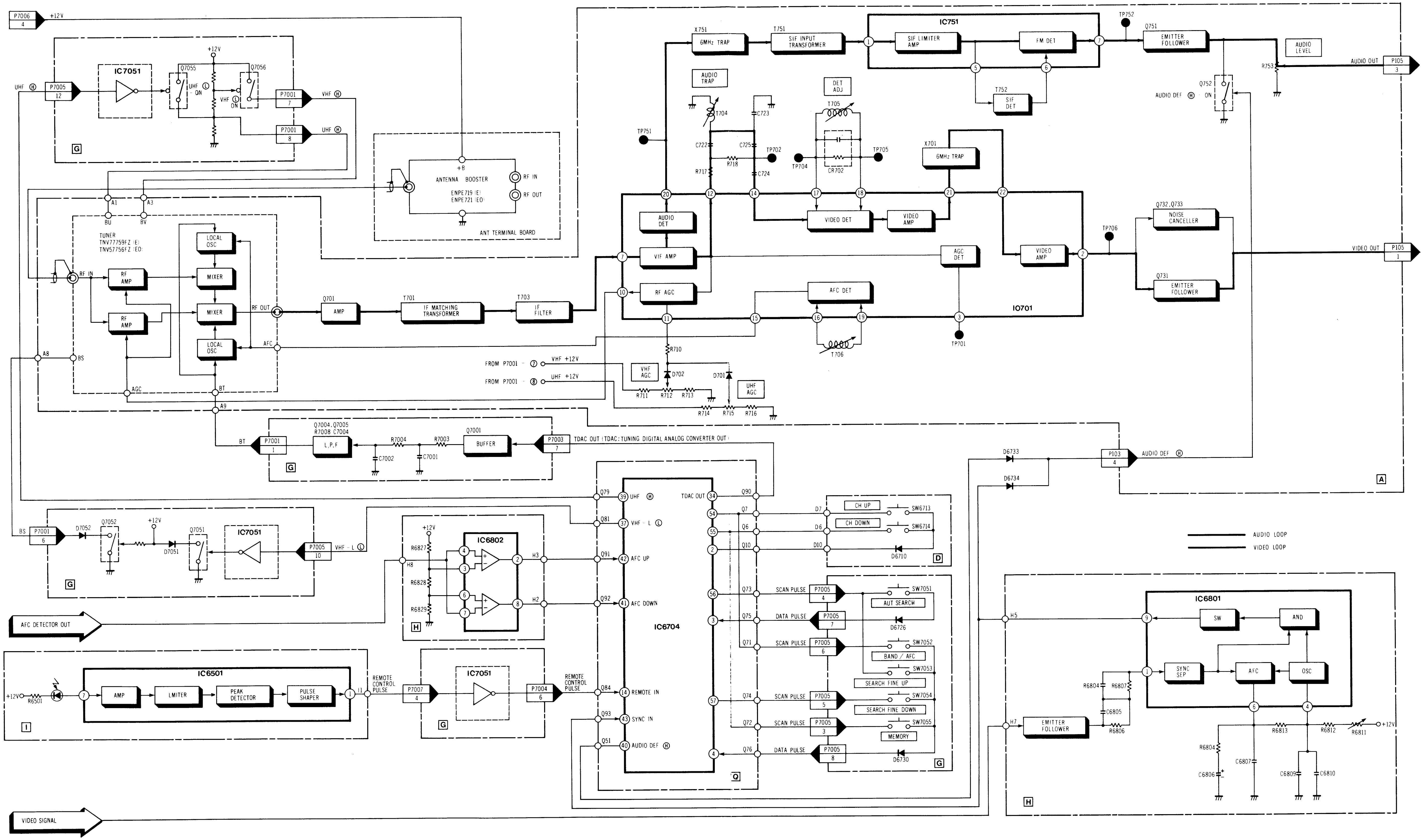
POWER SUPPLY AND HIGH SPEED CHARGE BLOCK DIAGRAM


AC
D151
L151, C154
L.P.F
Q151
Q161, D160, D161
+24V REGURATOR
T151
CHOPPER TRANSFORMER
Q157
SWITCHING
L158, C165
L.P.F
Q159, R173
R174, R175
OVERCURRENT DETECTOR
IC152
VOLTA
4
12
11
10
CHARGE VOLTAGE ADJ
R199
C173
D166
D165
R204
D16
D17
Q158
(OVERCURRENT or OVERVOLTAGE ON)
R169
(OVERCURRENT PROTECTION)
Q153
Q154, R157
C157, R156
25KHz OSCILLATOR
Q155
(BUFFER)
Q156
(AMP)
Q152
(BUFFER)
CHARGE ON
Q166
(CURRENT LEVEL SHIFTER)
Q163
2
3
1
IC151
R190
C172
13
12
14
IC151
(OVERCURRENT IN CHARGE MODE - Ⓛ)
P104
5
POWER ON Ⓗ
P103
2
CHAGE Ⓗ
(CHARGE SELECT)
Q164
(BUFFER)
Q165
(BUFFER)
Q160
(OVERVOLTAGE ON)
D158
R178
R179
VOLTAGE ADJ
R180
D169

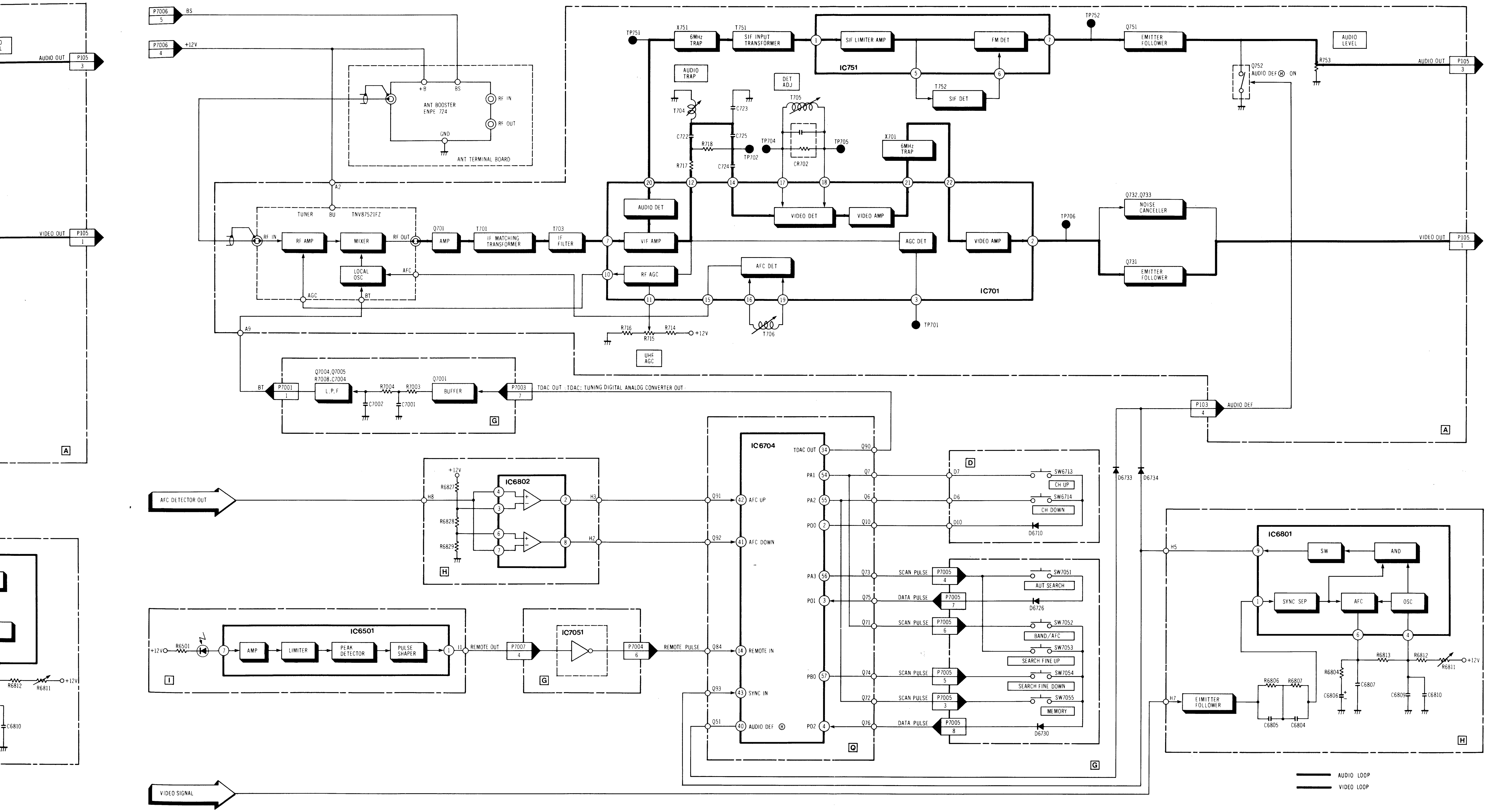
CK DIAGRAM


IC152
VOLTAGE SW
INPEDANCE MATCHING
4
12
11
10
7
6
5
3
Q161, D160, D161
+24V REGURATOR
CHARGE VOLTAGE ADJ
R199
D174
D172
C173
D173
Q167
T151
CHOPPER TRANSFORMER
Q157
SWITCHING
L158, C165
L.P.F
Q159, R173
R174, R175
OVERCURRENT DETECTOR
D166
D165
10
9
8
IC151
(BUFFER)
(CHARGE START-ON)
DC OUT
PIN 2 OF MULTI CONNECTOR
R204
D167
D178
Q158
(OVERCURRENT or OVERVOLTAGE ON)
R169
Q163
(CHARGE START-ON)
2
3
1
IC151
CHARGE ON
Q166
Q156
(AMP)
R)
(CURRENT LEVEL SHIFTER)
Q163
D163
D164
C176
R190
C172
13
12
14
IC151
(OVERCURRENT IN CHARGE MODE - Ⓛ)
R178
Q160
(OVERVOLTAGE ON)
D158
R179
VOLTAGE ADJ
R180
R192
R193
D169

TV DEMODULATOR BLOCK DIAGRAM (NV-V10E/EO)

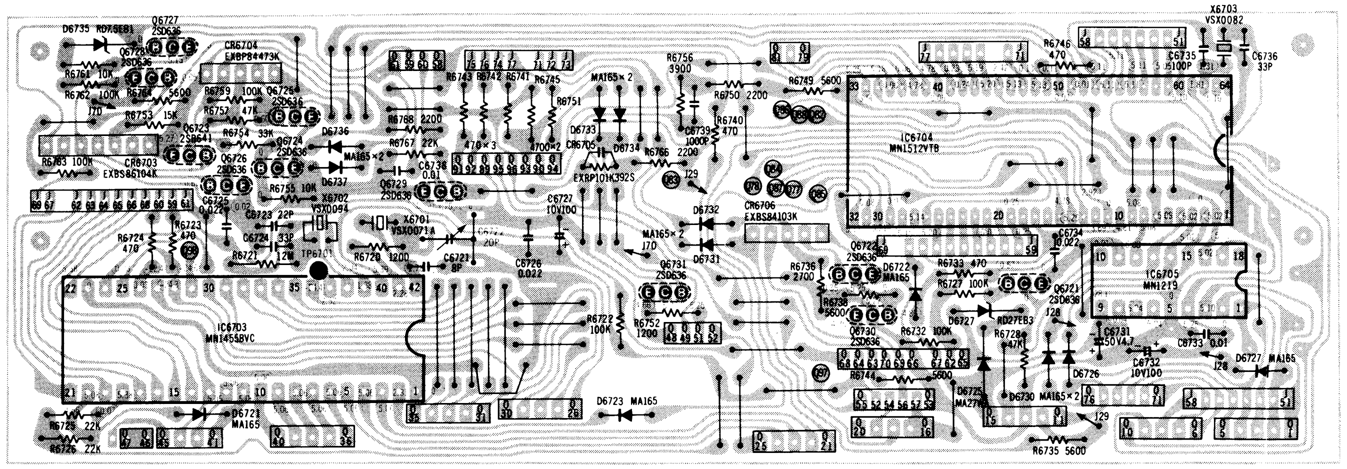

P7006 4
+12V
IC7051
+12V
Q7055
Q7056
UHF ⓗ
P7005 12
UHF ⓛ ON
VHF ⓛ ON
P7001 7
VHF ⓗ
P7001 8
UHF ⓗ
G
+B
ANTENNA BOOSTER
ENPE719 (E)
ENPE721 (EO)
RF IN
RF OUT
ANT TERMINAL BOARD
A1
A3
BU
BV
TUNER
TNV77759FZ (E)
TNV57756FZ (EO)
RF IN
RF AMP
RF AMP
LOCAL OSC
MIXER
MIXER
LOCAL OSC
RF OUT
AFC
A8
BS
AGC
BT
A9
Q701
AMP
T701
IF MATCHING TRANSFORMER
T703
IF FILTER
X751
6MHz TRAP
T751
SIF INPUT TRANSFORMER
IC751
SIF LIMITER AMP
FM DET
T752
SIF DET
TP752
Q751
EMITTER FOLLOWER
AUDIO LEVEL
R753
AUDIO OUT
P105 3
Q752
AUDIO DEF ⓗ
ON
AUDIO TRAP
T704
C723
DET ADJ
T705
TP751
C722
C725
R718
TP702
R717
C724
TP704
CR702
TP705
X701
6MHz TRAP
AUDIO DET
VIDEO DET
VIDEO AMP
VIF AMP
AGC DET
VIDEO AMP
RF AGC
AFC DET
IO701
TP701
T706
TP706
Q732, Q733
NOISE CANCELLER
Q731
EMITTER FOLLOWER
VIDEO OUT
P105 1
R710
FROM P7001 ⑦ VHF +12V
FROM P7001 ⑧ UHF +12V
VHF AGC
D702
D701
UHF AGC
R711
R712
R713
R714
R715
R716
Q7004, Q7005
R7008 C7004
BT
P7001 1
L.P.F
R7004
R7003
C7002
C7001
Q7001
BUFFER
P7003 7
TDAC OUT (TDAC: TUNING DIGITAL ANALOG CONVERTER OUT)
D6733
D6734
P103 4
AUDIO DEF ⓗ
A
BS
P7001 6
D7052
Q7052
+12V
D7051
Q7051
IC7051
P7005 10
VHF - L ⓛ
Q79
Q81
Q91
Q92
Q84
Q93
Q51
39 UHF ⓗ
37 VHF - L ⓛ
42 AFC UP
41 AFC DOWN
IC6704
14 REMOTE IN
43 SYNC IN
40 AUDIO DEF ⓗ
TDAC OUT 34
54
55
2
56
3
57
4
Q90
Q7
Q6
Q10
D7
D6
D10
CH UP
CH DOWN
SW6713
SW6714
D6710
D
Q73
Q75
Q71
Q74
Q72
Q76
SCAN PULSE
DATA PULSE
SCAN PULSE
SCAN PULSE
SCAN PULSE
DATA PULSE
P7005 4
P7005 7
P7005 6
P7005 5
P7005 3
P7005 8
SW7051
AUT SEARCH
D6726
SW7052
BAND / AFC
SW7053
SEARCH FINE UP
SW7054
SEARCH FINE DOWN
SW7055
MEMORY
D6730
G
Q
+12V
IC6802
R6827
H8
R6828
R6829
H3
H2
H
AFC DETECTOR OUT
+12V
R6501
IC6501
AMP
LMITER
PEAK DETECTOR
PULSE SHAPER
I1
REMOTE CONTROL PULSE
P7007 4
IC7051
P7004 6
REMOTE CONTROL PULSE
I
G
AUDIO LOOP
VIDEO LOOP
H5
IC6801
SW
AND
SYNC SEP
AFC
OSC
R6804
R6807
C6805
R6806
H7
EMITTER FOLLOWER
R6804
C6806
C6807
R6813
R6812
R6811
+12V
C6809
C6810
H
VIDEO SIGNAL

TV DEMODULATOR BLOCK DIAGRAM (NV-V10B)



AUDIO OUT
P105 3
VIDEO OUT
P105 1
P7006 5
BS
P7006 4
+12V
+B
ANT BOOSTER
ENPE 724
RF IN
RF OUT
GND
ANT TERMINAL BOARD
A2
TUNER
BU
TNV87521FZ
RF AMP
MIXER
RF OUT
LOCAL OSC
AFC
AGC
BT
Q701
AMP
T701
IF MATCHING TRANSFORMER
T703
IF FILTER
A9
TP751
X751
6MHz TRAP
T751
SIF INPUT TRANSFORMER
SIF LIMITER AMP
FM DET
IC751
T752
SIF DET
TP752
Q751
EMITTER FOLLOWER
AUDIO LEVEL
R753
Q752
AUDIO DEF Ⓗ ON
AUDIO TRAP
T704
C722
R718
R717
C723
C725
C724
TP702
DET ADJ
T705
TP704
CR702
TP705
X701
6MHz TRAP
AUDIO DET
VIF AMP
RF AGC
VIDEO DET
VIDEO AMP
AGC DET
VIDEO AMP
AFC DET
T706
IC701
TP701
TP706
R716
R715
R714
UHF AGC
Q732,Q733
NOISE CANCELLER
Q731
EMITTER FOLLOWER
Q7004,Q7005
R7008,C7004
L.P.F
R7004
R7003
C7002
C7001
Q7001
BUFFER
P7001 1
P7003 7
TDAC OUT   TDAC: TUNING DIGITAL ANALOG CONVERTER OUT
G
P103 4
AUDIO DEF
A
AFC DETECTOR OUT
+12V
R6827
R6828
R6829
IC6802
H8
H3
H2
H
IC6704
TDAC OUT
PA1
PA2
PO0
AFC UP
AFC DOWN
PA3
PO1
REMOTE IN
SYNC IN
AUDIO DEF Ⓗ
PB0
PO2
Q90
Q7
Q6
Q10
Q91
Q92
Q73
Q75
Q71
Q84
Q93
Q74
Q72
Q51
Q76
D
D7
D6
D10
SW6713
CH UP
SW6714
CH DOWN
D6710
SCAN PULSE
DATA PULSE
P7005
SW7051
AUT SEARCH
D6726
SW7052
BAND/AFC
SW7053
SEARCH FINE UP
SW7054
SEARCH FINE DOWN
SW7055
MEMORY
D6730
D6733
D6734
IC6501
+12V
R6501
AMP
LIMITER
PEAK DETECTOR
PULSE SHAPER
REMOTE OUT
P7007 4
IC7051
P7004 6
REMOTE PULSE
I
IC6801
H5
SW
AND
SYNC SEP
AFC
OSC
R6813
R6812
R6811
R6804
C6807
C6806
C6809
C6810
H7
EMITTER FOLLOWER
R6806
R6807
C6805
C6804
AUDIO LOOP
VIDEO LOOP
VIDEO SIGNAL

TIMER BOARD (NV-V10E/EO; VEP4051A)



CONNECTION TO SWITCH SECTION

Q62	P6703 - 3
Q63	P6703 - 8
Q64	P6703 - 7
Q65	P6703 - 6
Q66	P6703 - 5
Q67	P6703 - 4
Q68	P6703 - 10
Q69	P6703 - 1
Q70	P6703 - 2

CONNECTION TO SELECTOR SECTION

Q71	P7005 - 6
Q72	P7005 - 3
Q73	P7005 - 4
Q74	P7005 - 5
Q75	P7005 - 7
Q76	P7005 - 8
Q77	P7005 - 1
Q78	P7005 - 2
Q79	P7005 - 12
Q80	P7005 - 11

Q81	P7005 - 10
Q82	P7005 - 9
Q83	P7004 - 5
Q84	P7004 - 6
Q85	P7004 - 3
Q86	P7004 - 1
Q87	P7004 - 2
Q88	P7004 - 4
Q89	P7003 - 1
Q90	P7003 - 7

Q91	P7003 - 3
Q92	P7003 - 4
Q93	P7003 - 6
Q94	P7003 - 5
Q95	P7003 - 2
Q96	P7003 - 8

CONNECTION TO TV DEMODULATOR SECTION

Q46	Ⓗ	P102 - 2
Q47	Ⓗ	P102 - 1
Q48	GND	P103 - 1
Q49	CHARGE Ⓗ	P103 - 2
Q50	CHARGE LED	P103 - 3
Q51	SOUND DEF	P103 - 4
Q52	+5V BACK-UP	P104 - 1
Q53	+5V	P104 - 2
Q54	+12V	P104 - 3
Q55	+45V (VPP)	P104 - 4

Q56	POWER ON Ⓗ	P104 - 5
Q57	GND	P104 - 8
Q58	SI	P6701 - 2
Q59	SAFETY TAB	P6701 - 4
Q60	SŌ	P6701 - 1
Q61	CH LOCK Ⓗ	P6701 - 3

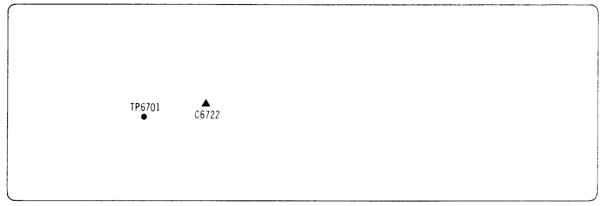
CONNECTION TO TIMER DISPLAY SECTION

FROM Q1~Q19 TO D1~D19

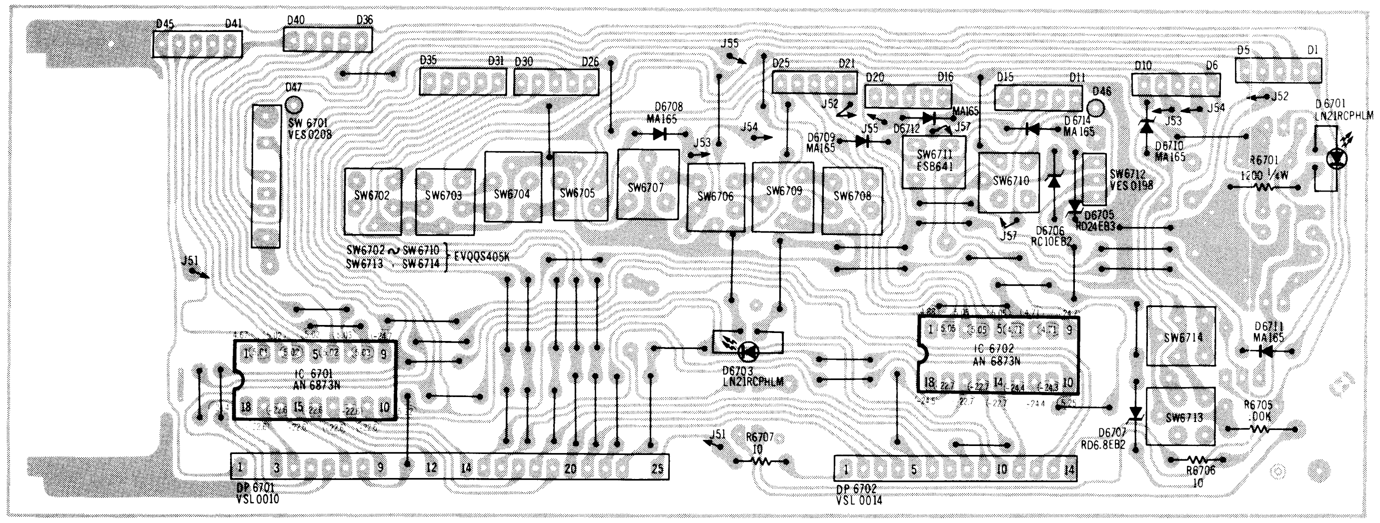
FROM Q20~Q45 TO D20~D45

FROM Q97 TO D46

Timer	
Q6721	B-4
Q6722	B-4
Q6723	C-1
Q6724	B-2
Q6725	C-2
Q6726	B-2
Q6727	C-1
Q6728	C-1
Q6729	B-2
Q6730	B-4
Q6731	B-3
IC6703	B-2
IC6704	C-4
IC6705	B-5



TIMER DISPLAY BOARD (VEP4052A)



CONNECTION TO ANOTHER P.C.B UNIT
FROM D1~D19 TO Q1~Q19 (TIMER SECTION)
FROM D21~D45 TO Q21~Q45 (TIMER SECTION)
FROM D46 TO Q97 (TIMER SECTION)

SELECTOR BOARD (NV-V10E/EO; VEP

P7001 (TO TV DV DEMODULATOR SECTION)

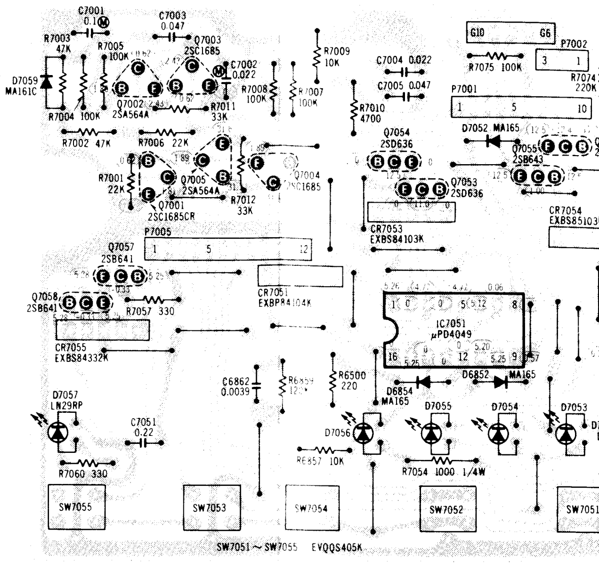
1	BT	TO A9
2	+30V	A7
3	AFC	A4
4	SWITCHED +12V	A2
5	AFC (FROM IC701)	A5
6	BS	A8
7	BV	A3
8	BU	A1
9	REG 12V	A6
10	GND	A10

P7002 (TO TV DEMODULATOR SECTION)

1	VIDEO +B	TO A11
2	GND	A13
3	VIDEO	A12

P7005 (TO TIMER SECTION)

1	Q77
2	Q78
3	Q72
4	Q73
5	Q74
6	Q71
7	Q75
8	Q76
9	Q82
10	Q81
11	Q80
12	Q79



P7007 (TO IR RECEIVER SECTION)

1	I3
2	——
3	I2
4	I1

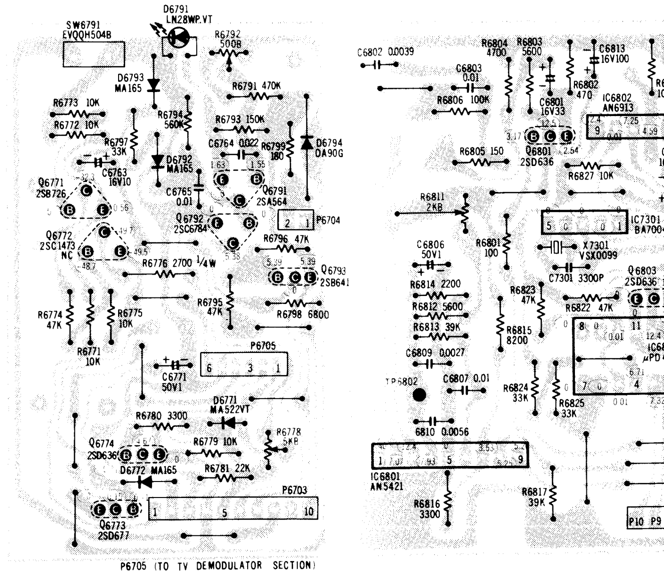
P7006 (TO ANTENNA BOOSTER)

1	GND
2	——
3	——
4	+B
5	——

P7004 (TO TIMER SECTION)

1	Q86
2	Q87
3	Q85
4	Q88
5	Q83
6	Q84

SWITCH BOARD (VEP4047A) SELECT



P6703 (TO TIMER SECTION)

1	TO Q67
2	Q70
3	Q62
4	Q67
5	Q66
6	Q65
7	Q64
8	Q63
9	——
10	Q68

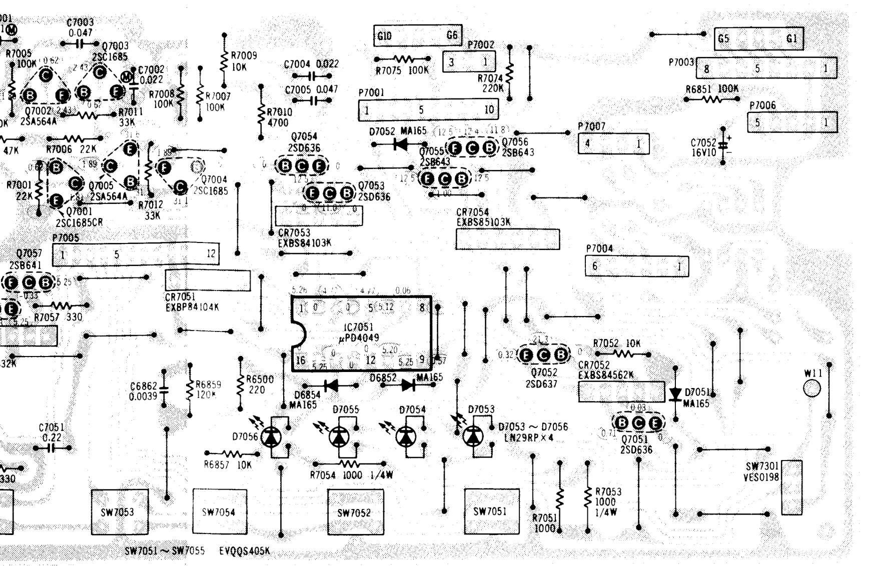
P6704 (TO BACK UP SECTION)

1	+5V
2	GND

P6705 (TO TV DEMODULATOR SECTION)

1	+5V BACK UP	A17
2	+5V	A14
3	——	——
4	SW	A16
5	GND	A15
6	-45V	A18

RD (NV·V10E/EO; VEP4050A)



C7003 0.047
Q7003 2SC1685
R7009 10K
C7004 0.022
R7075 100K
P7002
R7074 220K
P7003
R6851 100K
P7006
C7002 0.022
R7008 100K
R7007 100K
R7010 4700
P7001
C7005 0.047
Q7002 2SA564A
R7011 33K
R7006 22K
Q7005 2SA564A
Q7004 2SC1685
R7012 33K
Q7001 2SC1685CR
R7001 22K
P7005
Q7054 2SD636
D7052 MA165
Q7055 2SB643
Q7056 2SB643
P7007
C7052 16V10
Q7053 2SD636
CR7054 EXBS85103K
CR7053 EXBS84103K
Q7057 2SB641
R7057 330
CR7051 EXBP84104K
P7004
IC7051 μPD4049
R7052 10K
CR7052 EXBS84562K
Q7052 2SD637
D6852 MA165
D6854 MA165
C6862 0.0039
R6859 120K
R6500 220
D7051 MA165
W11
C7051 0.22
D7055
D7054
D7053
D7056
D7053 ~ D7056 LN29RP×4
Q7051 2SD636
R6857 10K
R7054 1000 1/4W
SW7301 VES0198
SW7053
SW7054
SW7052
SW7051
R7051 1000
R7053 1000 1/4W
SW7051 ~ SW7055 EVQQS405K

CEIVER SECTION)

P7006 (TO ANTENNA BOOSTER)

1	GND
2	——
3	——
4	+B
5	——

P7004 (TO TIMER SECTION)

1	Q86
2	Q87
3	Q85
4	Q88
5	Q83
6	Q84

P7003 (TO TIMER SECTION)

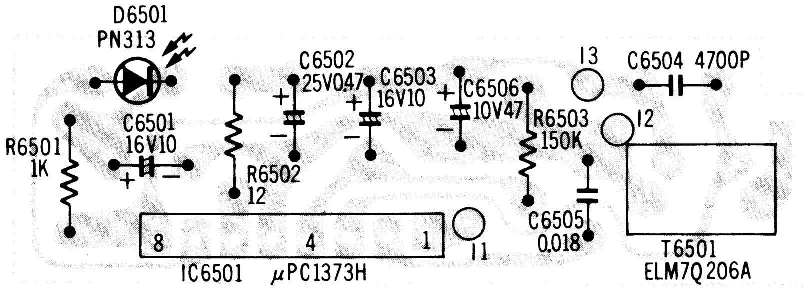
1	Q89
2	Q95
3	Q91
4	Q92
5	Q94
6	Q93
7	Q90
8	Q96

CONNECTION TO SELECTOR SUB SECTION
FROM G1 ~ G11 TO P1 ~ P11

2 3 4 5

Selector P.C.B	
Q7001	C-2
Q7002	C-2
Q7003	C-2
Q7004	C-3
Q7005	C-2
Q7051	B-4
Q7052	B-4
Q7053	C-3
Q7054	C-3
Q7055	C-3
Q7056	C-4
Q7057	B-2
Q7058	B-2
IC7051	B-3

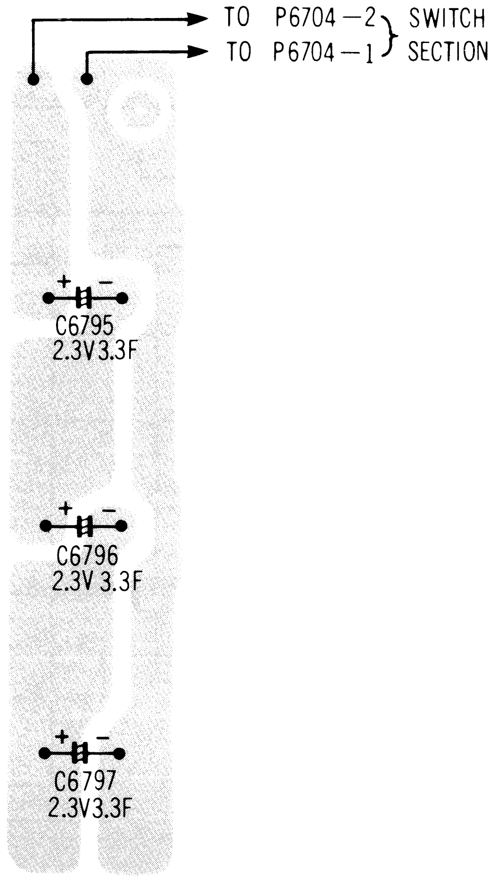
IR RECEIVER BOARD (VEP4053A)



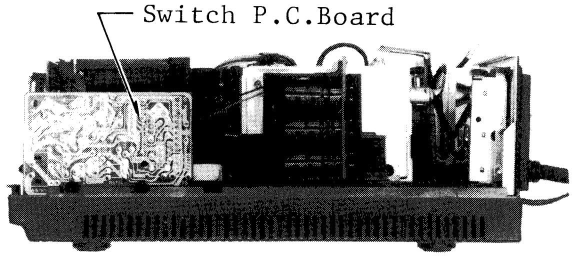
D6501
PN313
C6502 25V047
C6503 16V10
C6506 10V47
I3
C6504 4700P
R6501 1K
C6501 16V10
R6502 12
R6503 150K
I2
C6505 0.018
8
4
1
I1
IC6501 μPC1373H
T6501 ELM7Q206A

I1	P7007-4
I2	P7007-3
I3	P7007-1

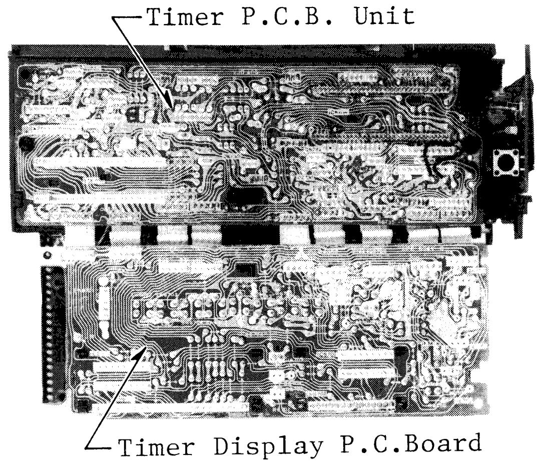
BACK UP BOARD (VEP4049A)



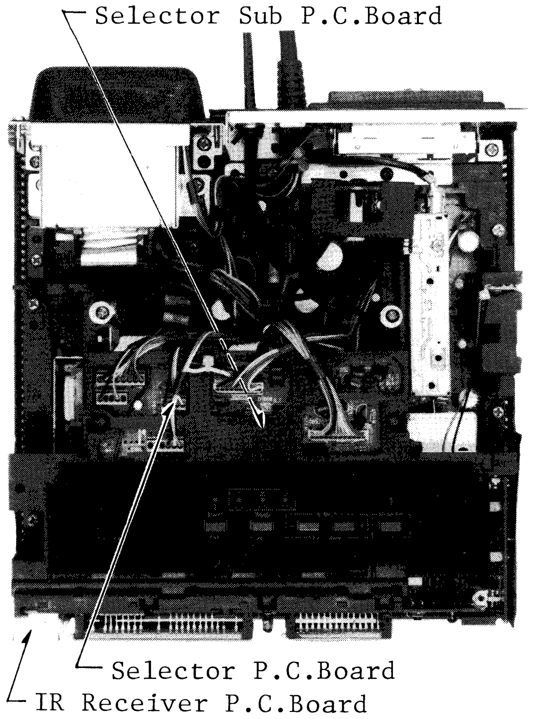
TO P6704 — 2
TO P6704 — 1
SWITCH SECTION
C6795 2.3V3.3F
C6796 2.3V 3.3F
C6797 2.3V3.3F



Switch P.C.Board

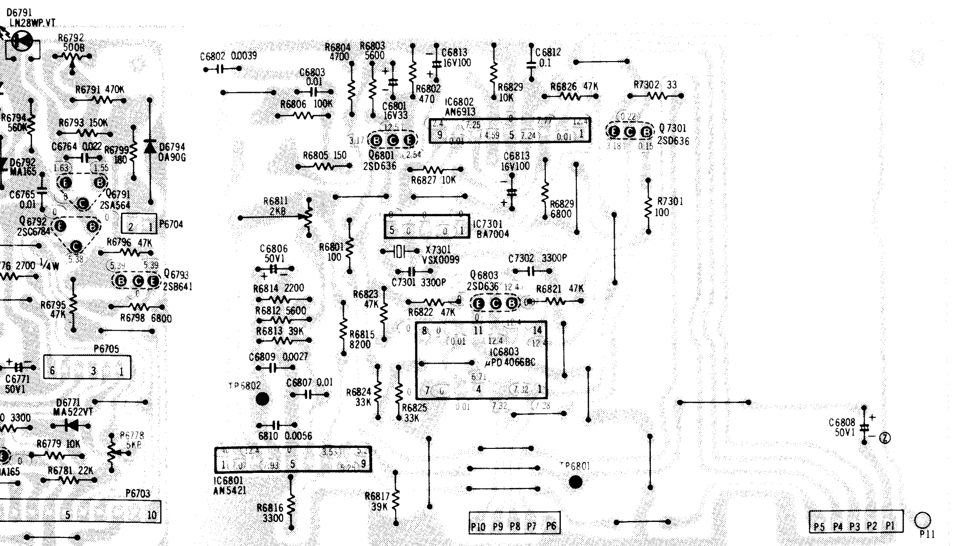


Timer P.C.B. Unit
Timer Display P.C.Board



Selector Sub P.C.Board
Selector P.C.Board
IR Receiver P.C.Board

(VEP4047A) SELECTOR SUB BOARD (VEP4048A)



D6791 LN28WP.VT
R6792 500B
C6802 0.0039
R6804 4700
R6803 5600
C6813 16V100
C6812 0.1
R6791 470K
C6803 0.01
R6829 10K
R6826 47K
R7302 33
R6806 100K
R6802 470
IC6802 AN6913
C6801 16V33
R6793 150K
C6764 0.022
R6794 560K
R6790 390
D6794 OA90G
Q7301 2SD636
D6792 MA165
R6805 150
Q6801 2SD636
C6813 16V100
R6827 10K
C6765 0.01
Q6791 2SA564
Q6792 2SC1684
R6811 2K8
R6829 6800
R7301 100
P6704
IC7301 BA7004
C6806 50V1
R6801 100
X7301 VSX0099
C7302 3300P
R6796 47K
Q6793 2SB641
R6814 2200
R6812 5600
R6813 39K
R6823 47K
C7301 3300P
Q6803 2SD636
R6821 47K
R6822 47K
R6795 47K
R6798 6800
R6815 8200
IC6803 μPD4066BC
C6809 0.0027
P6705
C6771 50V1
TP6802
C6807 0.01
R6824 33K
R6825 33K
D6771 MA522VT
C6810 0.0056
R6779 10K
R6778 5KB
R6781 22K
C6808 50V1
IC6801 AN5421
R6816 3300
R6817 39K
TP6801
P6703
P10 P9 P8 P7 P6
P5 P4 P3 P2 P1
P11

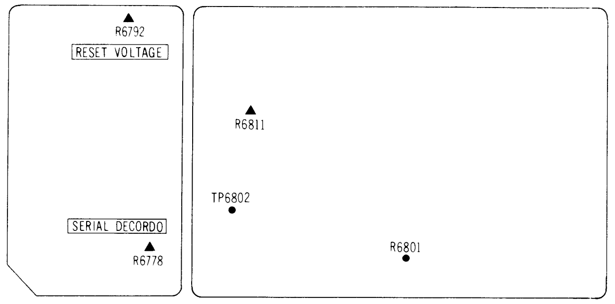
TO TV DEMODULATOR SECTION)

+5V BACK UP	A17
+5V	A14
——	——
SW	A16
GND	A15
-45V	A18

CONNECTION TO SELECTOR SECTION
FROM P1 ∽ P11 TO G1 ∽ G11

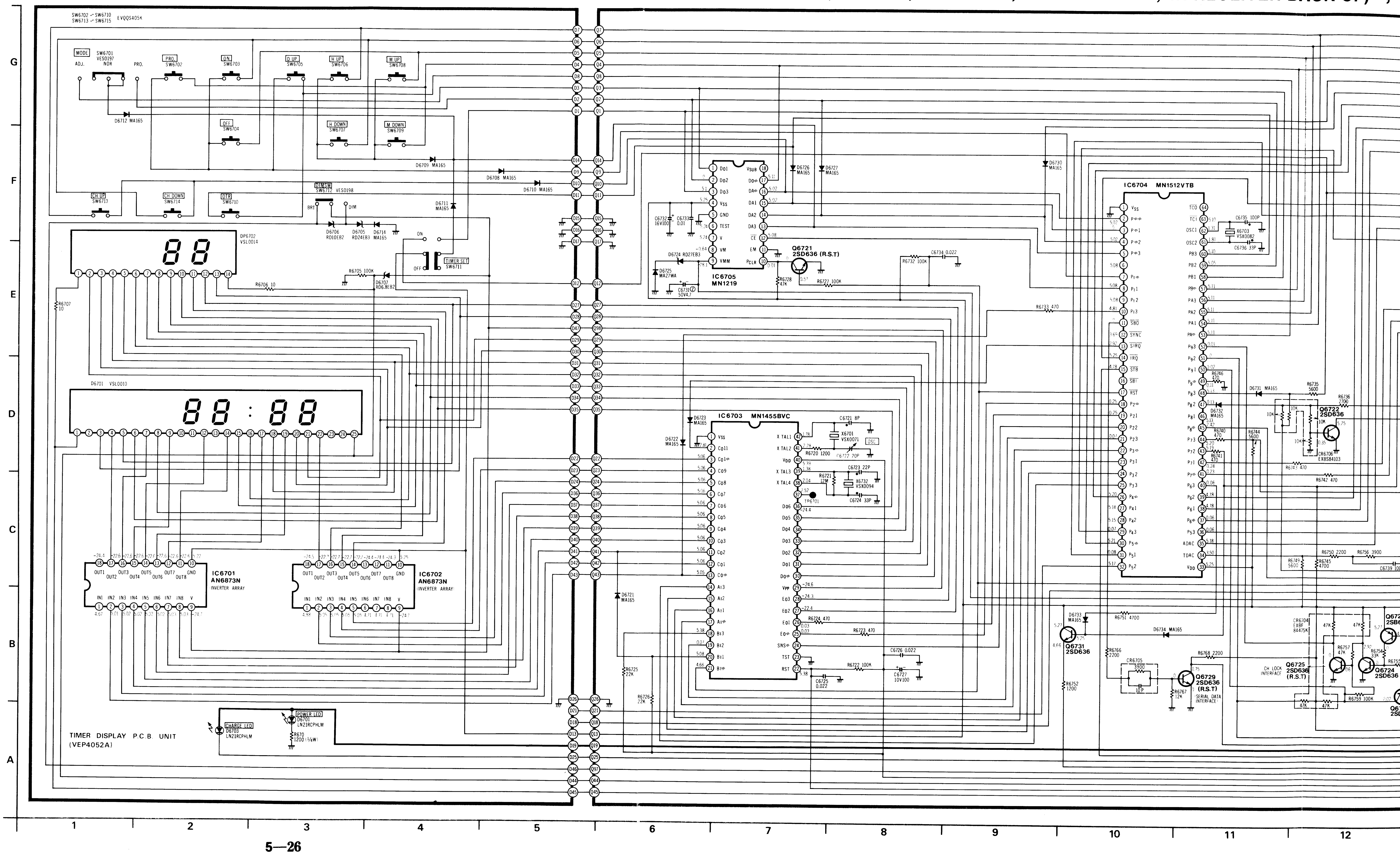
2 3 4 5

Switch Selector Sub	
Q6771	B-2
Q6772	B-2
Q6773	A-2
Q6774	A-2
Q6791	B-2
Q6792	B-2
Q6793	B-2
Q6801	C-3
Q6803	B-4
Q7301	C-4
IC6801	A-3
IC6802	C-4
IC6803	B-4
IC7301	B-4

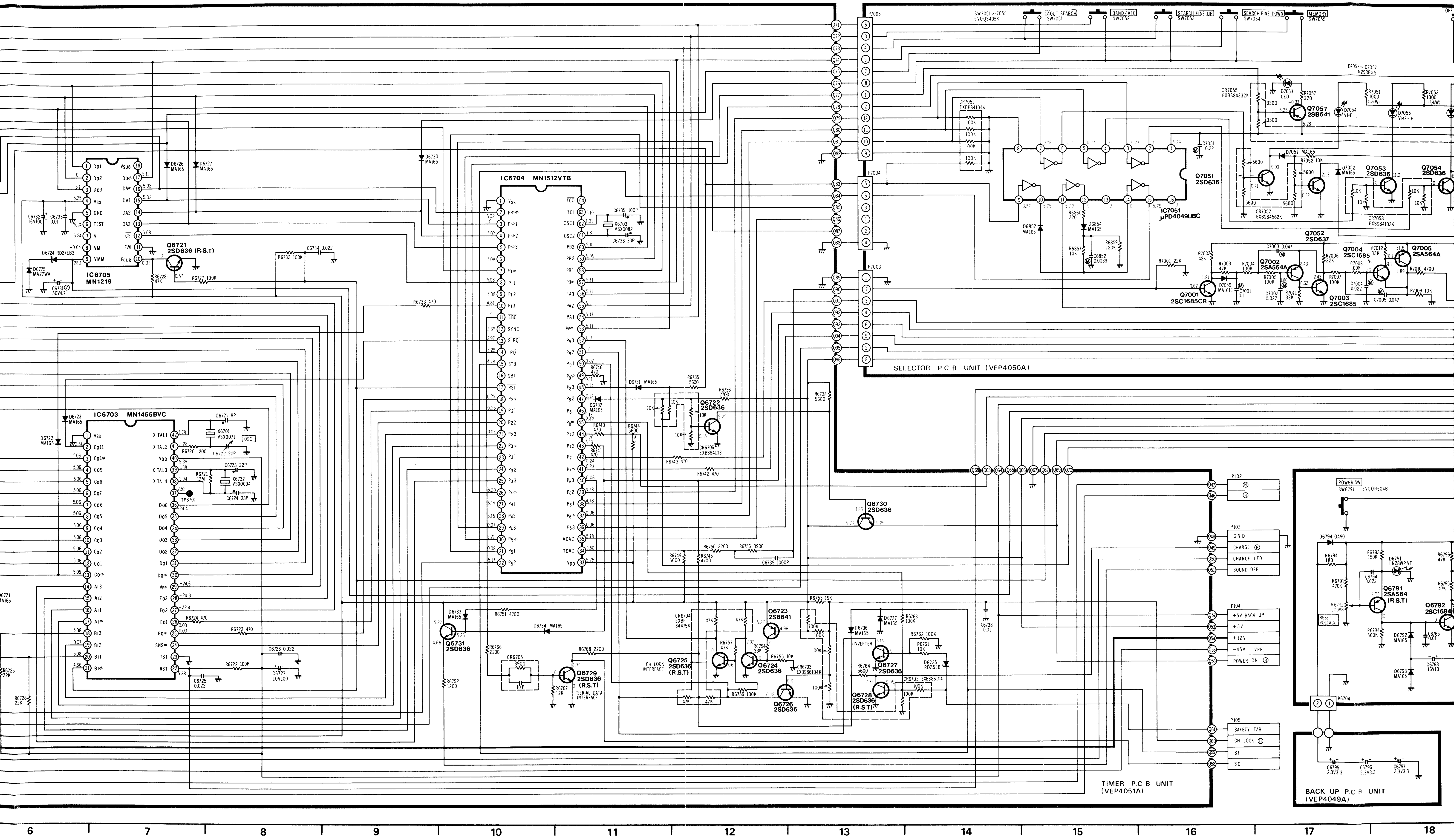


R6792
RESET VOLTAGE
SERIAL DECORDO
R6778
R6811
TP6802
R6801

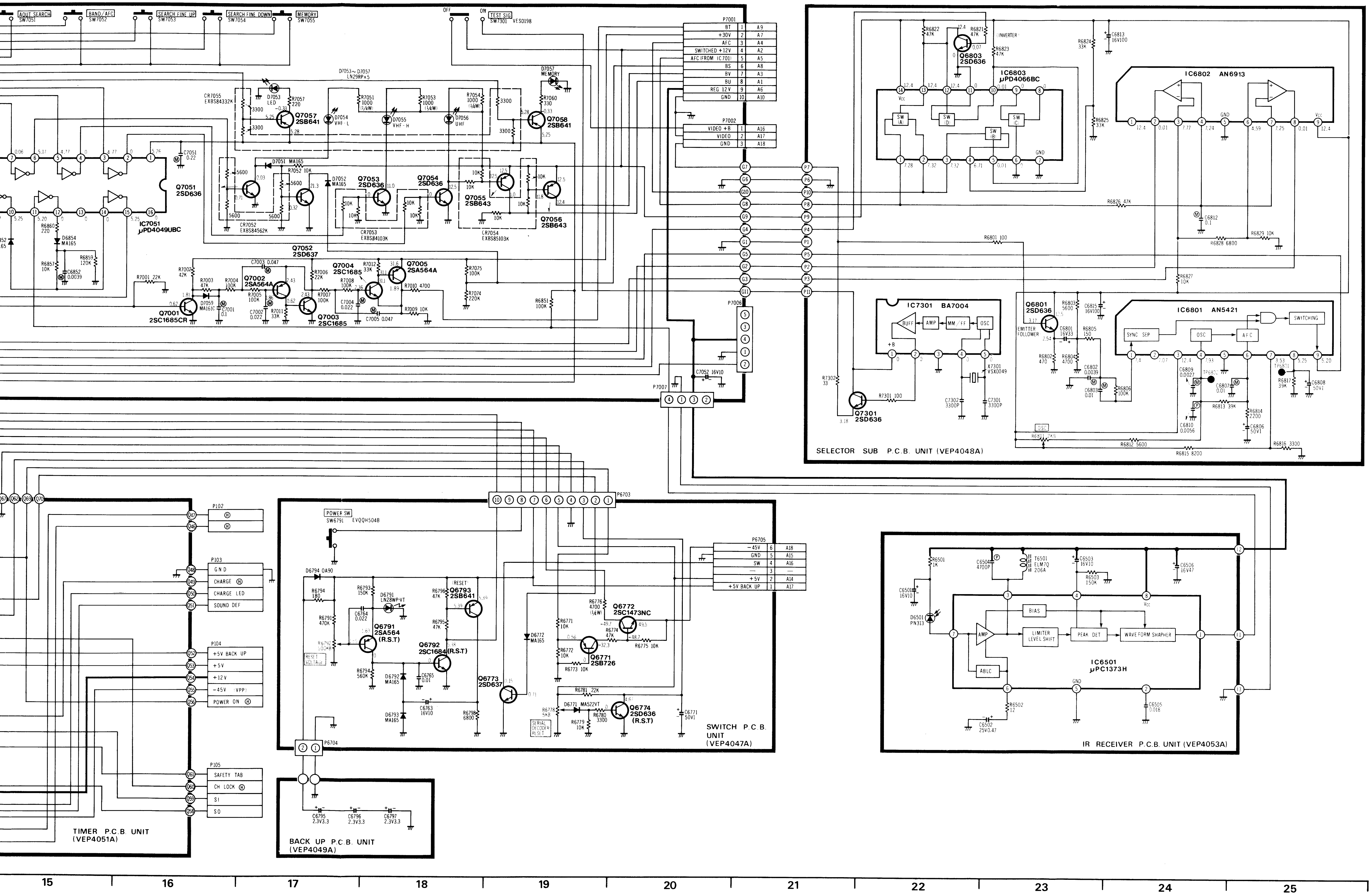
PROGRAMMABLE TIMER SCHEMATIC DIAGRAM (TIMER, TIMER DISPLAY, SWITCH, SELECTOR, SELECTOR SUB, IR RECEIVER BACK UP) ;


SW6702 ~ SW6710
SW6713 ~ SW6715 EVQQS405K
MODE SW6701 VES0197
ADJ. NOR PRO.
PRO. SW6702
ON SW6703
D UP SW6705
H UP SW6706
M UP SW6708
OFF SW6704
H DOWN SW6707
M DOWN SW6709
D6712 MA165
D6709 MA165
D6708 MA165
D6710 MA165
CH UP SW6713
CH DOWN SW6714
OTR SW6710
DIMSW SW6712 VES0198
BRT DIM
D6711 MA165
D6706 RD10EB2
D6705 RD24EB3
D6714 MA165
TIMER SET SW6711
ON OFF
DP6702 VSL0014
R6706 10
R6705 100K
D6707 RD6.8EB2
R6707 10
D6701 VSL0010
IC6701 AN6873N INVERTER ARRAY
IC6702 AN6873N INVERTER ARRAY
TIMER DISPLAY P.C.B. UNIT (VEP4052A)
CHARGE LED D6703 LN21RCPHLM
POWER LED D6701 LN21RCPHLM
R670 1200 (1/4W)
IC6705 MN1219
D6726 MA165
D6727 MA165
Q6721 2SD636 (R.S.T)
C6732 16V100
C6733 0.01
D6724 RD27EB3
D6725 MA27WA
C6731 50V4.7
R6728 47K
R6727 100K
R6732 100K
C6734 0.022
R6733 470
D6730 MA165
IC6703 MN1455BVC
D6723 MA165
D6722 MA165
C6721 8P
X6701 VSX0071
OSC
R6720 1200
C6722 20P
C6723 22P
R6721 12M
X6732 VSX0094
C6724 33P
TP6701
R6724 470
R6723 470
R6722 100K
C6726 0.022
C6727 10V100
C6725 0.022
D6721 MA165
R6725 22K
R6726 22K
IC6704 MN1512VTB
C6735 100P
X6703 VSX0082
C6736 33P
D6731 MA165
R6735 5600
R6736 2700
Q6722 2SD636
D6732 MA165
R6740 470
R6741 470
R6746 470
R6744 5600
CR6706 EXB584103
R6743 470
R6742 470
R6750 2200
R6756 3900
R6749 5600
R6745 4700
C6739
D6733 MA165
Q6731 2SD636
R6751 4700
D6734 MA165
R6766 2200
R6752 1200
CR6705 3900 10P
R6767 12K
Q6729 2SD636 (R.S.T) SERIAL DATA INTERFACE
R6768 2200
CH LOCK INTERFACE
Q6725 2SD636 (R.S.T)
CR6704 EXBF 84475K
Q6724 2SD636
R6757 47K
R6754 33K
R6759 100K
G F E D C B A
1 2 3 4 5 6 7 8 9 10 11 12

(TIMER, TIMER DISPLAY, SWITCH, SELECTOR, SELECTOR SUB, IR RECEIVER BACK UP) ; NV-V10E/EO



IC6705 MN1219
Q6721 2SD636 (R.S.T)
IC6704 MN1512VTB
IC6703 MN1455BVC
X6701 VSX0071
X6703 VSX0082
X6732 VSX0094
TP6701
Q6722 2SD636
Q6723 2SB641
Q6724 2SD636
Q6725 2SD636 (R.S.T)
Q6726 2SD636
Q6727 2SD636
Q6728 2SD636 (R.S.T)
Q6729 2SD636 (R.S.T)
Q6730 2SD636
Q6731 2SD636
CH LOCK INTERFACE
SERIAL DATA INTERFACE
INVERTER
P7005
SW7051~7055 EVQQS405K
AQUT SEARCH SW7051
BAND/AFC SW7052
SEARCH FINE UP SW7053
SEARCH FINE DOWN SW7054
MEMORY SW7055
P7004
P7003
IC7051 μPD4049UBC
Q7051 2SD636
Q7052 2SD637
Q7053 2SD636
Q7054 2SD636
Q7057 2SB641
Q7001 2SC1685CR
Q7002 2SA564A
Q7003 2SC1685
Q7004 2SC1685
Q7005 2SA564A
D7053~D7057 LN29RP×5
D7053 LED
D7054 VHF L
D7055 VHF-H
SELECTOR P.C.B. UNIT (VEP4050A)
P102
P103
GND
CHARGE Ⓗ
CHARGE LED
SOUND DEF
P104
+5V BACK UP
+5V
+12V
-45V (VPP)
POWER ON Ⓗ
P105
SAFETY TAB
CH LOCK Ⓗ
SI
SO
TIMER P.C.B UNIT (VEP4051A)
POWER SW
SW6791 EVQQH504B
Q6791 2SA564 (R.S.T)
Q6792 2SC1684
P6704
BACK UP P.C.B UNIT (VEP4049A)
6
7
8
9
10
11
12
13
14
15
16
17
18


AOUT SEARCH SW7051
BAND/AFC SW7052
SEARCH FINE UP SW7053
SEARCH FINE DOWN SW7054
MEMORY SW7055
OFF
ON
TEST SIG SW7301 VES0198
P7001
BT
+30V
AFC
SWITCHED +12V
AFC(FROM IC701)
BS
BV
BU
REG 12V
GND
P7002
VIDEO+B
VIDEO
GND
D7053~D7057 LN29RP×S
D7053 LED
Q7057 2SB641
D7054 VHF-L
D7055 VHF-H
D7056 UHF
D7057 MEMORY
Q7058 2SB641
IC7051 μPD4049UBC
Q7051 2SD636
D7051 MA165
D7052 MA165
Q7053 2SD636
Q7054 2SD636
Q7055 2SB643
Q7056 2SB643
CR7052 EXBS84562K
CR7053 EXBS84103K
CR7054 EXBS85103K
CR7055 EXBS84332K
Q7052 2SD637
Q7001 2SC1685CR
Q7002 2SA564A
Q7003 2SC1685
Q7004 2SC1685
Q7005 2SA564A
D7059 MA161C
P7006
P7007
C7052 16V10
IC6803 μPD4066BC
Q6803 2SD636
INVERTER
IC6802 AN6913
IC7301 BA7004
BUFF
AMP
MM/FF
OSC
X7301 VSX0049
Q7301 2SD636
Q6801 2SD636
EMITTER FOLLOWER
IC6801 AN5421
SYNC SEP
OSC
AFC
SWITCHING
SELECTOR SUB P.C.B. UNIT (VEP4048A)
P102
P103
GND
CHARGE Ⓗ
CHARGE LED
SOUND DEF
P104
+5V BACK UP
+5V
+12V
-45V (VPP)
POWER ON Ⓗ
P105
SAFETY TAB
CH LOCK Ⓗ
S1
S0
TIMER P.C.B. UNIT (VEP4051A)
P6703
POWER SW SW6791 EVQQH504B
D6794 OA90
D6791 LN28WP-VT
Q6791 2SA564 (R.S.T)
Q6792 2SC1684 (R.S.T)
Q6793 2SB641
RESET
D6792 MA165
D6793 MA165
Q6773 2SD637
D6772 MA165
Q6772 2SC1473NC
Q6771 2SB726
D6771 MA522VT
Q6774 2SD636 (R.S.T)
SERIAL DECODER RESET
P6705
-45V
GND
SW
—
+5V
+5V BACK UP
SWITCH P.C.B. UNIT (VEP4047A)
P6704
C6795 2.3V3.3
C6796 2.3V3.3
C6797 2.3V3.3
BACK UP P.C.B. UNIT (VEP4049A)
T6501 ELM7Q 206A
D6501 PN313
BIAS
AMP
LIMITER LEVEL SHIFT
PEAK DET
WAVE FORM SHAPHER
ABLC
IC6501 μPC1373H
IR RECEIVER P.C.B. UNIT (VEP4053A)
15
16
17
18
19
20
21
22
23
24
25

Timer	
Q6721	E-7
Q6722	D-12
Q6723	C-12
Q6724	B-12
Q6725	B-12
Q6726	B-12
Q6727	B-13
Q6728	B-13
Q6729	B-11
Q6730	C-13
Q6731	B-10
IC6703	D-7
IC6704	F-10
IC6705	E-7

Timer Display	
IC6701	C-2
IC6702	C-4

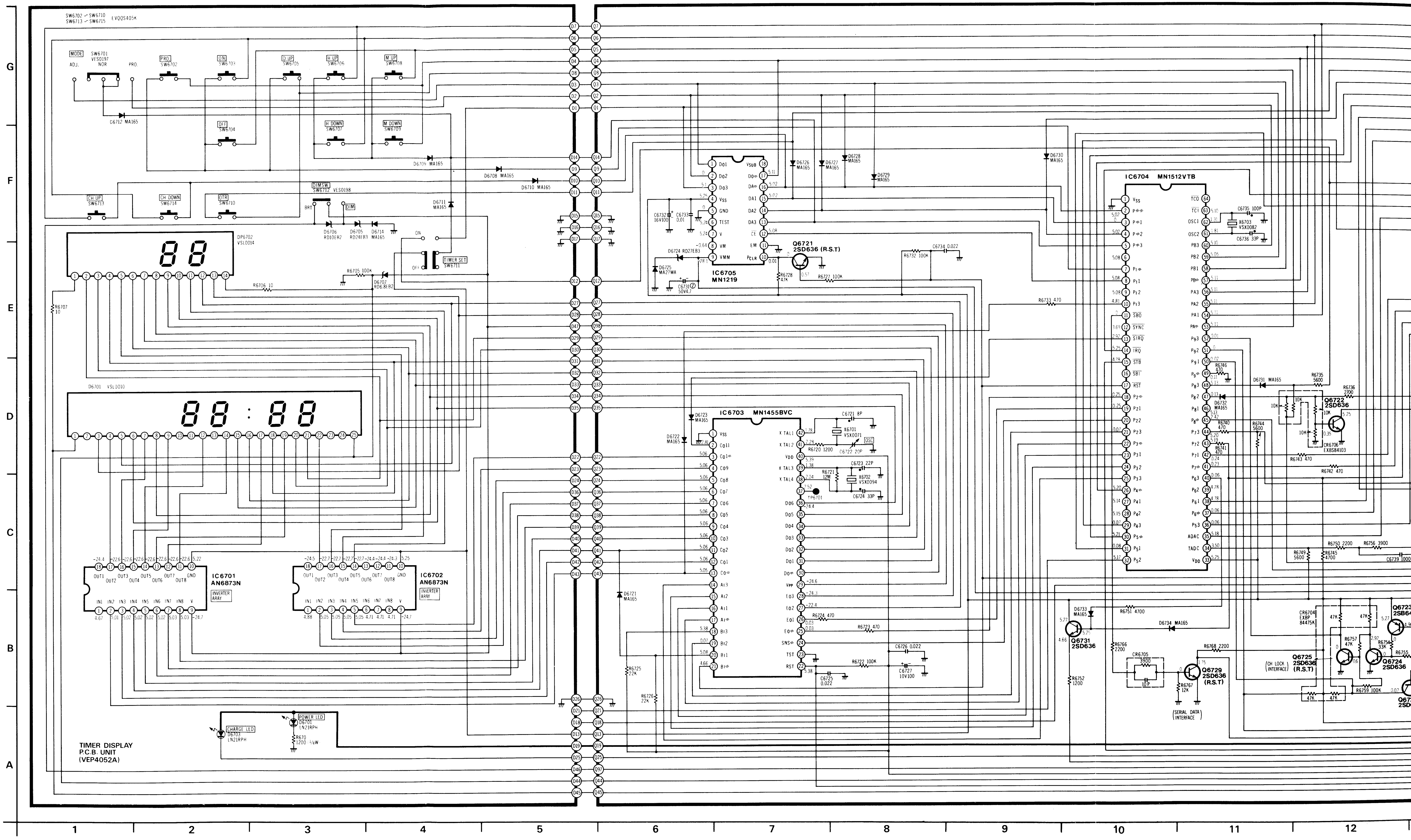
Selector	
Q7001	E-16
Q7002	E-17
Q7003	E-17
Q7004	E-18
Q7005	E-18
Q7051	F-17
Q7052	F-17
Q7053	F-18
Q7054	F-18
Q7055	F-19
Q7056	F-19
Q7057	G-17
Q7058	G-19

Selector Sub	
Q6801	E-23
Q6803	G-22
Q7301	D-22
IC6801	E-24
IC6802	G-24
IC6803	G-23
IC7301	E-22

Switch	
Q6771	B-19
Q6772	C-20
Q6773	B-19
Q6774	B-20
Q6791	B-18
Q6792	B-18
Q6793	C-18

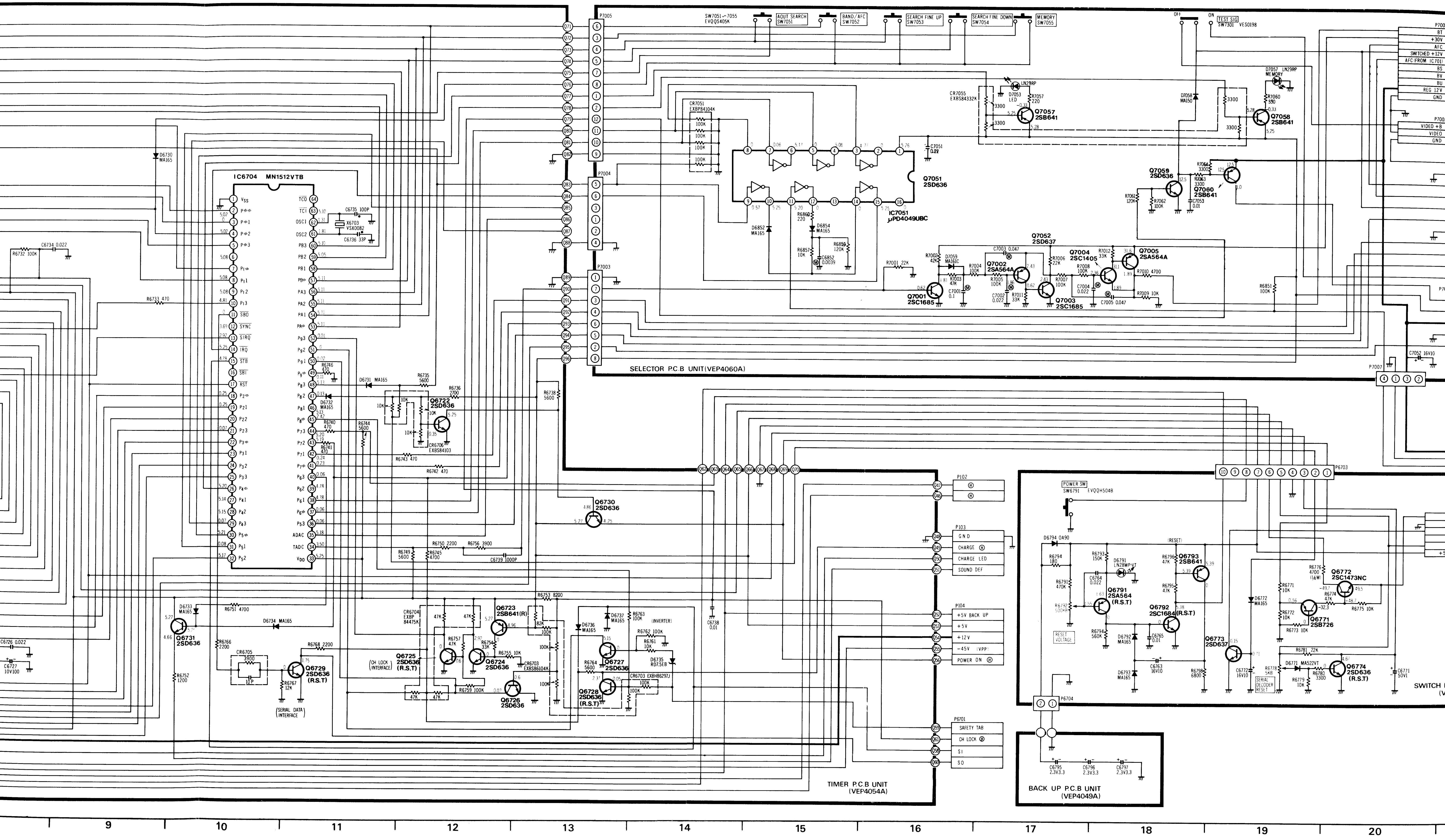
IR Receiver	
IC6501	B-24

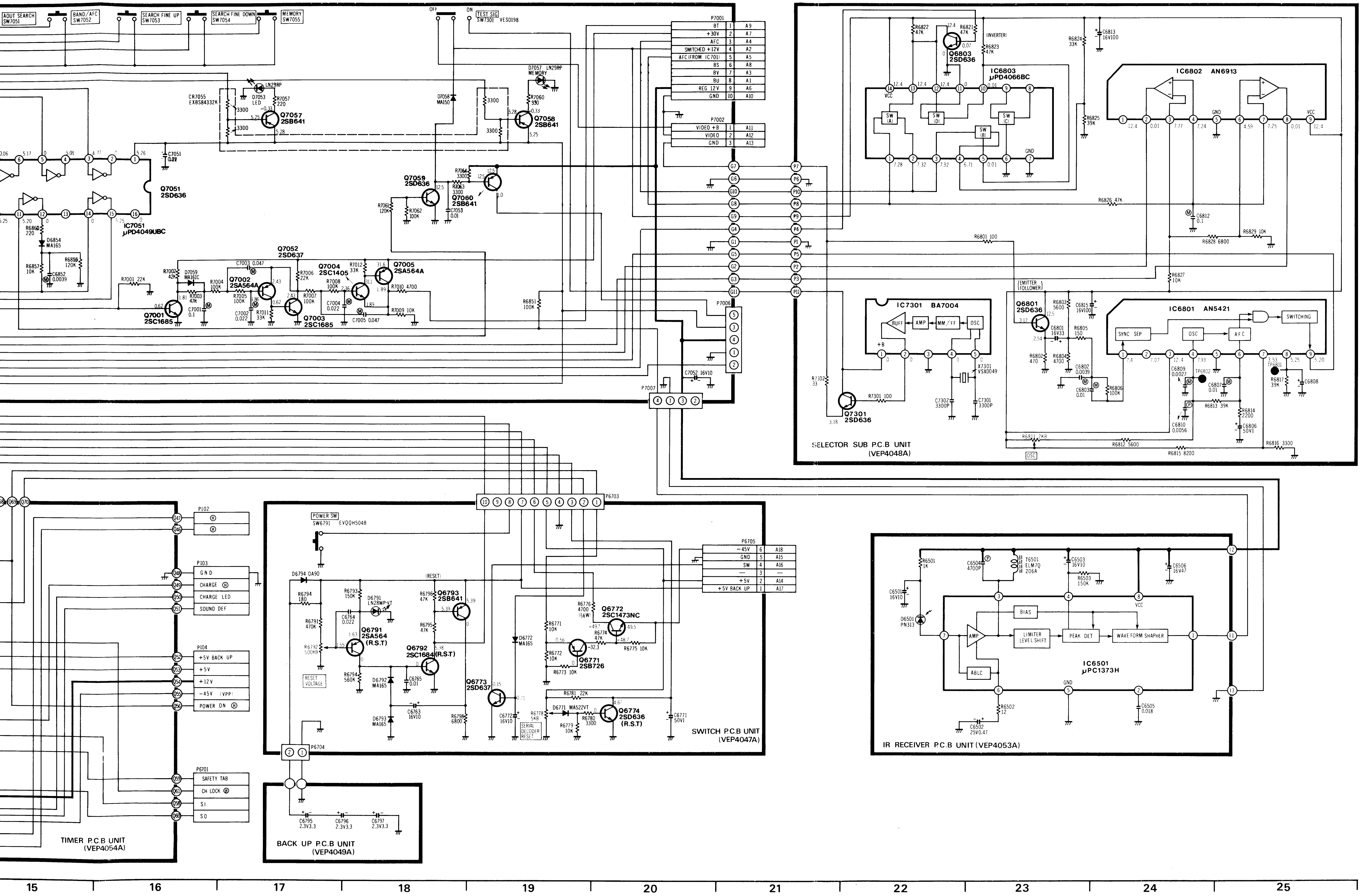
PROGRAMMABLE TIMER SCHEMATIC DIAGRAM (TIMER, TIMER DISPLAY, SWITCH, SELECTOR SUB, IR RECEIVER, BACK UP) ; NV-V10B



SW6702 ~ SW6710
SW6713 ~ SW6715 EVQQS405K
MODE SW6701 VES0197
ADJ. NOR PRO.
PROG. SW6702
ON SW6703
D UP SW6705
H UP SW6706
M UP SW6708
D6712 MA165
OFF SW6704
H DOWN SW6707
M DOWN SW6709
D6709 MA165
D6708 MA165
D6710 MA165
CH UP SW6713
CH DOWN SW6714
OTR SW6710
DIMSW SW6712 VES0198
BRT
DIM
D6711 MA165
D6706 RD10EB2
D6705 RD24EB3
D6714 MA165
ON
OFF
TIMER SET SW6711
DP6702 VSL0014
R6705 100K
D6707 RD6.8EB2
R6706 10
R6707 10
D6701 VSL0010
IC6701 AN6873N
INVERTER ARRAY
IC6702 AN6873N
INVERTER ARRAY
CHARGE LED D6703 LN21RPH
POWER LED D6701 LN21RPH
R670 1200 1/4W
TIMER DISPLAY
P.C.B. UNIT
(VEP4052A)
IC6705 MN1219
Q6721 2SD636 (R.S.T)
R6728 47K
R6727 100K
C6732 16V100
C6733 0.01
D6724 RD27EB3
D6725 MA27WA
C6731 50V4.7
D6726 MA165
D6727 MA165
D6728 MA165
D6729 MA165
D6730 MA165
R6732 100K
C6734 0.022
R6733 470
IC6703 MN1455BVC
D6723 MA165
D6722 MA165
C6721 8P
X6701 VSX0071
R6720 1200
C6722 20P
OSC
R6721 12M
C6723 22P
X6702 VSX0094
C6724 33P
TP6701
R6724 470
R6723 470
C6726 0.022
R6722 100K
C6727 10V100
C6725 0.022
D6721 MA165
R6725 22K
R6726 22K
IC6704 MN1512VTB
C6735 100P
X6703 VSX0082
C6736 33P
R6746 470
D6731 MA165
R6735 5600
R6736 2700
Q6722 2SD636
D6732 MA165
R6740 470
R6741 470
R6744 5600
CR6706 EXBS84103
R6743 470
R6742 470
R6750 2200
R6756 3900
R6749 5600
R6745 4700
C6739 1000
D6733 MA165
Q6731 2SD636
R6751 4700
D6734 MA165
R6766 2200
CR6705
R6768 2200
Q6729 2SD636 (R.S.T)
R6767 12K
R6752 1200
(SERIAL DATA INTERFACE)
CR6704 EXBP 84475K
R6757 47K
R6754 33K
Q6725 2SD636 (R.S.T)
Q6724 2SD636
(CH LOCK INTERFACE)
R6759 100K
Q6723 2SB64
R6755
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12

SELECTOR SUB, IR RECEIVER, BACK UP) ; NV-V10B


IC6704 MN1512VTB
IC7051 μPD4049UBC
Q7051 2SD636
Q7052 2SD637
Q7001 2SC1685
Q7002 2SA564A
Q7003 2SC1685
Q7004 2SC1405
Q7005 2SA564A
Q7057 2SB641
Q7058 2SB641
Q7059 2SD636
Q7060 2SB641
Q6722 2SD636
Q6723 2SB641(R)
Q6724 2SD636
Q6725 2SD636 (R.S.T)
Q6726 2SD636
Q6727 2SD636
Q6728 2SD636 (R.S.T)
Q6729 2SD636 (R.S.T)
Q6730 2SD636
Q6731 2SD636
Q6771 2SB726
Q6772 2SC1473NC
Q6773 2SD637
Q6774 2SD636 (R.S.T)
Q6791 2SA564 (R.S.T)
Q6792 2SC1684(R.S.T)
Q6793 2SB641
P7005
P7004
P7003
P7007
P7006
P6703
P6704
P102
P103
P104
P6701
SW7051~7055 EVQQS405K
AOUT SEARCH SW7051
BAND/AFC SW7052
SEARCH FINE UP SW7053
SEARCH FINE DOWN SW7054
MEMORY SW7055
TEST SIG SW7301 VES0198
OFF
ON
POWER SW SW6791 EVQQH504B
BT
+30V
AFC
SWITCHED +12V
AFC (FROM IC701)
BS
BV
BU
REG 12V
GND
VIDEO +B
VIDEO
GND
GND
CHARGE Ⓗ
CHARGE LED
SOUND DEF
+5V BACK UP
+5V
+12V
-45V (VPP)
POWER ON Ⓗ
SAFETY TAB
CH LOCK Ⓛ
SI
SO
(CH LOCK INTERFACE)
(SERIAL DATA INTERFACE)
(INVERTER)
(RESET)
RESET VOLTAGE
SERIAL DECODER RESET
D7057 LN29RP MEMORY
D7053 LED LN29RP
D6791 LN28WP(Y)
X6703 VSX0082
CR7051 EXBP84104K
CR7055 EXBS84332K
CR6703 EXBH86297J
SELECTOR P.C.B UNIT(VEP4060A)
TIMER P.C.B UNIT (VEP4054A)
BACK UP P.C.B UNIT (VEP4049A)
SWITCH
9
10
11
12
13
14
15
16
17
18
19
20


AOUT SEARCH SW7051
BAND/AFC SW7052
SEARCH FINE UP SW7053
SEARCH FINE DOWN SW7054
MEMORY SW7055
OFF
ON
TEST SIG SW7301 VES0198
P7001
BT
+30V
AFC
SWITCHED +12V
AFC (FROM IC701)
BS
BV
BU
REG 12V
GND
A9
A7
A4
A2
A5
A8
A3
A1
A6
A10
P7002
VIDEO +B
VIDEO
GND
A11
A12
A13
CR7055 EXBS84332K
D7053 LED
LN29RP
R7057 220
Q7057 2SB641
D7057 LN29RP MEMORY
D7058 MA150
R7060 330
Q7058 2SB641
C7051 0.01
Q7051 2SD636
IC7051 μPD4049UBC
R6860 220
D6854 MA165
R6857 10K
R6859 120K
C6852 0.0039
Q7059 2SD636
R7064 3300
R7063 3300
Q7060 2SB641
R7061 120K
R7062 100K
C7053 0.01
Q7052 2SD637
C7003 0.047
R7001 22K
R7002 47K
D7059 MA161C
R7003 47K
R7004 100K
Q7002 2SA564A
R7005 100K
R7011 33K
C7001 0.1
C7002 0.022
Q7001 2SC1685
Q7003 2SC1685
R7006 22K
R7007 100K
Q7004 2SC1405
R7012 33K
R7008 100K
C7004 0.022
Q7005 2SA564A
R7010 4700
R7009 10K
C7005 0.047
R6851 100K
P7006
P7007
C7052 16V10
SELECTOR SUB P.C.B UNIT (VEP4048A)
R6822 47K
R6821 47K
Q6803 2SD636
(INVERTER)
R6823 47K
R6824 33K
C6813 16V100
IC6803 μPD4066BC
VCC
SW (A)
SW (D)
SW (C)
SW (B)
GND
R6825 39K
IC6802 AN6913
R6826 47K
C6812 0.1
R6801 100
R6828 6800
R6829 10K
R6827 10K
IC7301 BA7004
BUFF
AMP
MM/FF
OSC
X7301 VSX0049
C7302 3300P
C7301 3300P
R7302 33
R7301 100
Q7301 2SD636
(EMITTER FOLLOWER)
Q6801 2SD636
R6803 5600
C6815 16V100
C6801 16V33
R6805 150
R6802 470
R6804 4700
C6802 0.0039
C6803 0.01
R6806 100K
IC6801 AN5421
SYNC SEP
OSC
AFC
SWITCHING
C6809 0.0027
TP6802
C6807 0.01
R6813 39K
R6814 2200
C6806 50V1
C6810 0.0056
TP6801
R6817 39K
C6808
R6811 22KB
R6812 5600
R6815 8200
R6816 3300
OSC
P6703
P102
P103
GND
CHARGE
CHARGE LED
SOUND DEF
P104
+5V BACK UP
+5V
+12V
−45V (VPP)
POWER ON
P6701
SAFETY TAB
CH LOCK
SI
SO
TIMER P.C.B UNIT (VEP4054A)
POWER SW SW6791 EVQQH504B
D6794 OA90
(RESET)
R6794 180
R6793 150K
D6791 LN28WP-VT
C6764 0.022
R6791 470K
Q6791 2SA564 (R.S.T)
R6792 500KB
RESET VOLTAGE
R6796 47K
Q6793 2SB641
R6795 47K
Q6792 2SC1684 (R.S.T)
R6794 560K
D6792 MA165
C6765 0.01
D6793 MA165
C6763 16V10
R6798 6800
D6772 MA165
Q6773 2SD637
C6772 16V10
R6776 4700 (1/4W)
Q6772 2SC1473NC
R6774 47K
R6775 10K
R6771 10K
Q6771 2SB726
R6772 10K
R6773 10K
R6781 22K
D6771 MA522VT
R6778 5K8
SERIAL DECODER RESET
R6779 10K
R6780 3300
Q6774 2SD636 (R.S.T)
C6771 50V1
P6705
−45V
GND
SW
+5V
+5V BACK UP
A18
A15
A16
A14
A17
SWITCH P.C.B UNIT (VEP4047A)
P6704
C6795 2.3V3.3
C6796 2.3V3.3
C6797 2.3V3.3
BACK UP P.C.B UNIT (VEP4049A)
R6501 1K
C6504 4700P
T6501 ELM7Q 206A
C6503 16V10
R6503 150K
C6506 16V47
C6501 16V10
D6501 PN313
BIAS
AMP
LIMITER LEVEL SHIFT
PEAK DET
WAVE FORM SHAPHER
ABLC
IC6501 μPC1373H
GND
R6502 12
C6502 25V0.47
C6505 0.018
IR RECEIVER P.C.B UNIT (VEP4053A)
15
16
17
18
19
20
21
22
23
24
25

Timer	
Q6721	E-7
Q6722	D-12
Q6723	C-12
Q6724	B-12
Q6725	B-12
Q6726	B-12
Q6727	B-13
Q6728	B-13
Q6729	B-11
Q6730	C-13
Q6731	B-10
IC6703	D-7
IC6704	F-10
IC6705	E-7

Timer Display	
IC6701	C-2
IC6702	C-4

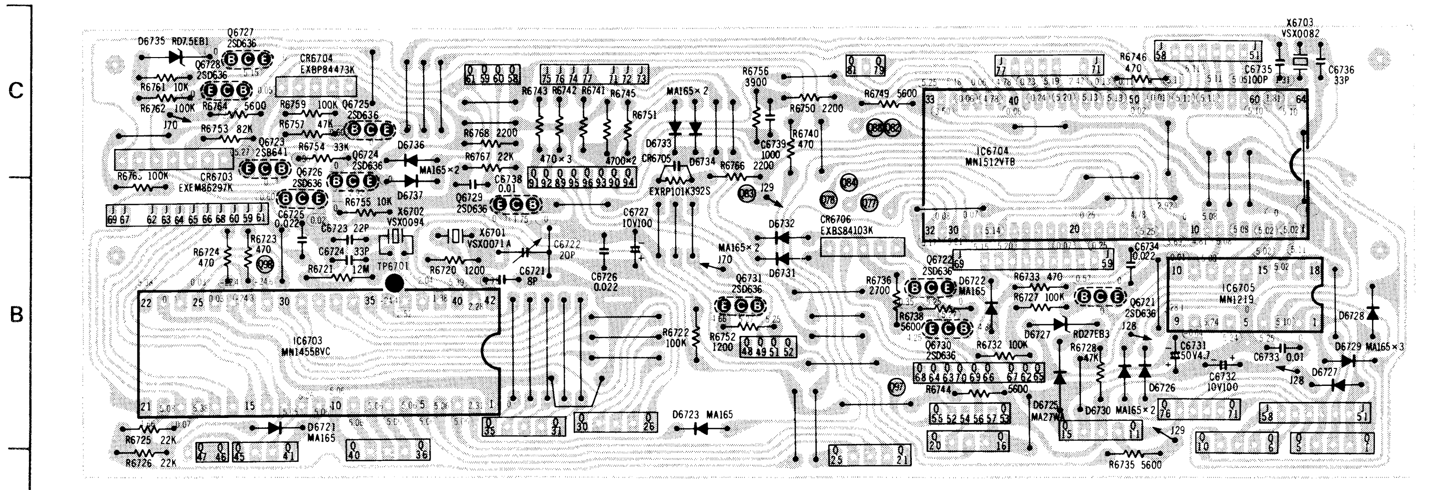
Selector	
Q7001	E-16
Q7002	E-17
Q7003	E-17
Q7004	E-18
Q7005	E-18
Q7057	G-17
Q7058	G-19
Q7059	F-18
Q7060	F-19

Selector Sub	
Q6801	E-23
Q6803	G-22
Q7301	D-22
IC6801	E-24
IC6802	G-24
IC6803	G-23
IC7301	E-22

Switch	
Q6771	B-19
Q6772	C-20
Q6773	B-19
Q6774	B-20
Q6791	B-18
Q6792	B-18
Q6793	C-18

IR Receiver	
IC6501	B-24

TIMER BOARD (NV-V10B; VEP4054A)



CONNECTION TO SWITCH SECTION

Q62	P6703 - 3
Q63	P6703 - 8
Q64	P6703 - 7
Q65	P6703 - 6
Q66	P6703 - 5
Q67	P6703 - 4
Q68	P6703 - 10
Q69	P6703 - 1
Q70	P6703 - 2

CONNECTION TO SELECTOR SECTION

Q71	P7005 - 6
Q72	P7005 - 3
Q73	P7005 - 4
Q74	P7005 - 5
Q75	P7005 - 7
Q76	P7005 - 8
Q77	P7005 - 1
Q78	P7005 - 2
Q79	P7005 - 12
Q80	P7005 - 11

Q81	P7005 - 10
Q82	P7005 - 9
Q83	P7004 - 5
Q84	P7004 - 6
Q85	P7004 - 3
Q86	P7004 - 1
Q87	P7004 - 2
Q88	P7004 - 4
Q89	P7003 - 1
Q90	P7003 - 7

Q91	P7003 - 3
Q92	P7003 - 4
Q93	P7003 - 6
Q94	P7003 - 5
Q95	P7003 - 2
Q96	P7003 - 8

CONNECTION TO TV DEMODULATOR SECTION

Q46	Ⓗ	P102 - 2
Q47	Ⓗ	P102 - 1
Q48	GND	P103 - 1
Q49	CHARGE Ⓗ	P103 - 2
Q50	CHARGE LED	P103 - 3
Q51	SOUND DEF	P103 - 4
Q52	+5V BACK-UP	P104 - 1
Q53	+5V	P104 - 2
Q54	+12V	P104 - 3
Q55	+45V (VPP)	P104 - 4

Q56	POWER ON Ⓗ	P104 - 5
Q57	GND	P104 - 8
Q58	S I	P6701 - 2
Q59	SAFETY TAB	P6701 - 4
Q60	$\overline{\text{SO}}$	P6701 - 1
Q61	CH LOCK Ⓗ	P6701 - 3

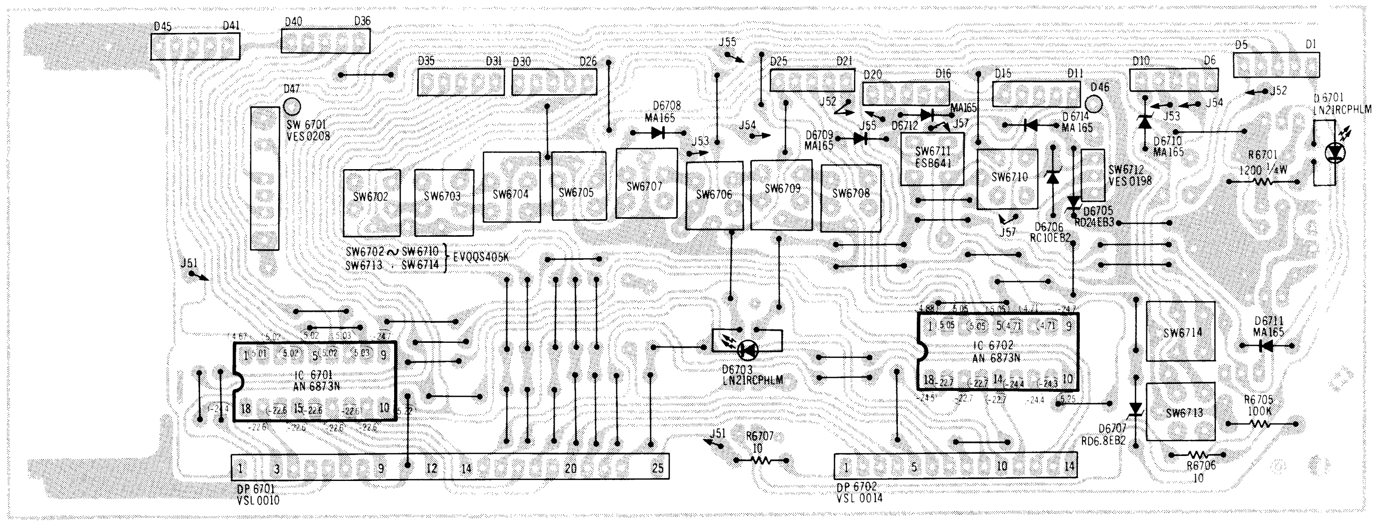
CONNECTION TO TIMER DISPLAY SECTION

FROM Q1~Q19 TO D1~D19
FROM Q20~Q45 TO D20~D45
FROM Q97 TO D46

Timer	
Q6721	B-4
Q6722	B-4
Q6723	C-1
Q6724	B-2
Q6725	C-2
Q6726	B-2
Q6727	C-1
Q6728	C-1
Q6729	B-2
Q6730	B-4
Q6731	B-3
IC6703	B-2
IC6704	C-4
IC6705	B-5

TP6701 ●
▲ C6722

TIMER DISPLAY BOARD (VEP4052A)



CONNECTION TO ANOTHER P.C.B UNIT
FROM D1~D19 TO Q1~Q19 (TIMER SECTION)
FROM D21~D45 TO Q21~Q45 (TIMER SECTION)
FROM D46 TO Q97 (TIMER SECTION)

SELECTOR BOARD (NV-V10B; VEP40

P7001 (TO TV DV DEMODULATOR SECTION)

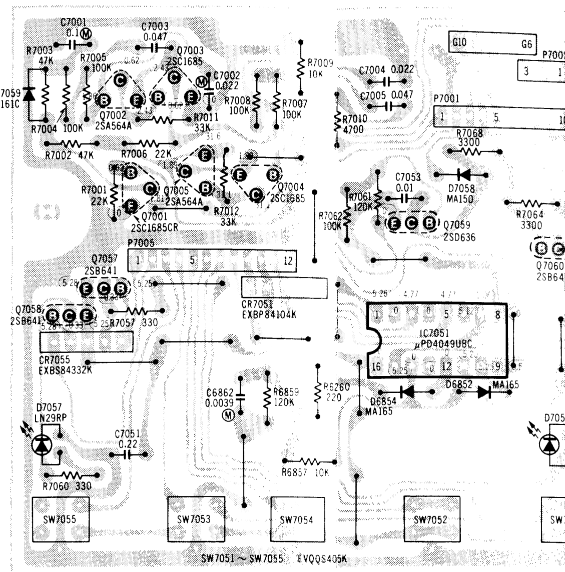
1	BT	TO A9
2	+30V	A7
3	AFC	A4
4	SWITCHED +12V	A2
5	AFC (FROM IC701)	A5
6	——	——
7	——	——
8	——	——
9	REG 12V	A6
10	GND	A10

P7002 (TO TV DEMODULATOR SECTION)

1	VIDEO +B	TO A11
2	GND	A13
3	VIDEO	A12

P7005 (TO TIMER SECTION)

1	Q77
2	Q78
3	Q72
4	Q73
5	Q74
6	Q71
7	Q75
8	Q76
9	Q82
10	Q81
11	Q80
12	Q79



P7007 (TO IR RECEIVER SECTION)

1	I3
2	——
3	I2
4	I1

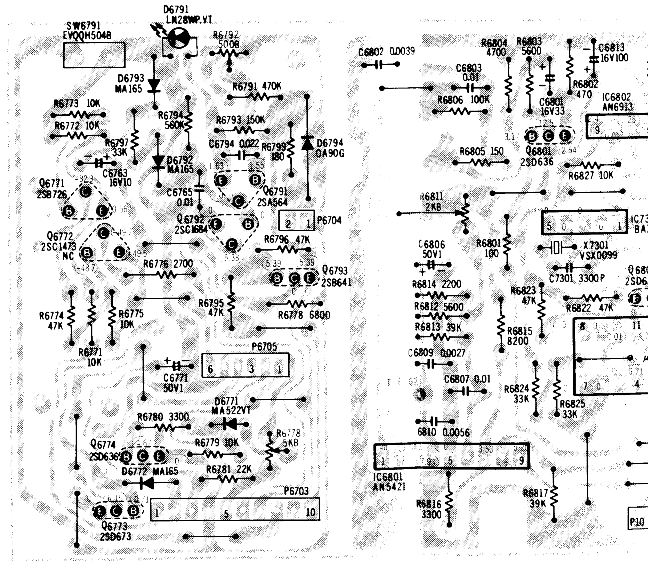
P7006 (TO ANTENNA BOOSTER)

1	GND
2	——
3	——
4	+B
5	BS

P7004 (TO TIMER SECTION)

1	Q86
2	Q87
3	Q85
4	Q88
5	Q83
6	Q84

SWITCH BOARD (VEP4047A) SELECT



P6703 (TO TIMER SECTION)

1	TO Q67
2	Q70
3	Q62
4	Q67
5	Q66
6	Q65
7	Q64
8	Q63
9	——
10	Q68

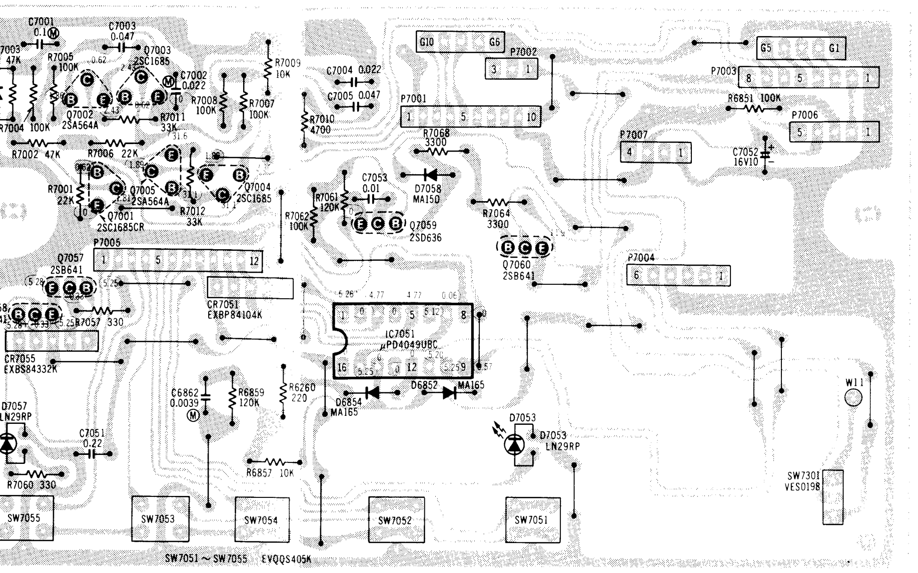
P6704 (TO BACK UP SECTION)

1	+5V
2	GND

P6705 (TO TV DEMODULATOR SECTION)

1	+5V BACK UP	A17
2	+5V	A14
3	——	——
4	SW	A16
5	GND	A15
6	-45V	A18

ARD (NV-V10B; VEP4060B)


C7001
C7003 0.047
Q7002
Q7005
2SA564A
R7009 10K
C7004 0.022
C7005 0.047
P7001
P7002
G10
G5
P7003
R6851 100K
P7006
C7052 16V10
R7010 4700
P7007
R7068 3300
Q7001 2SC1685CR
Q7004 2SC1685
P7005
Q7057 2SB641
R7057 330
CR7051 EXBP84104K
R7061 120K
C7053 0.01
D7058 MA150
Q7059 2SD636
R7064 3300
Q7060 2SB641
P7004
CR7055 EXBS84332K
IC7051 μPD4049UBC
C6862 0.0039
R6859 120K
R6260 220
D6854 MA165
D6852 MA165
D7053 LN29RP
D7057 LN29RP
C7051 0.22
R7060 330
R6857 10K
W11
SW7301 VES0198
SW7055
SW7053
SW7054
SW7052
SW7051
SW7051 ~ SW7055 EVQQS405K

IR RECEIVER SECTION)

I3
——
I2
I1

P7006 (TO ANTENNA BOOSTER)

1	GND
2	——
3	——
4	+B
5	BS

P7004 (TO TIMER SECTION)

1	Q86
2	Q87
3	Q85
4	Q88
5	Q83
6	Q84

P7003 (TO TIMER SECTION)

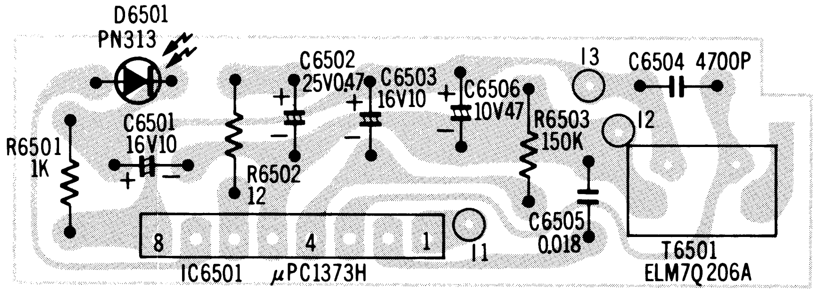
1	Q89
2	Q95
3	Q91
4	Q92
5	Q94
6	Q93
7	Q90
8	Q96

CONNECTION TO SELECTOR SUB SECTION
FROM G1 ~ G11 TO P1 ~ P11

2 3 4 5

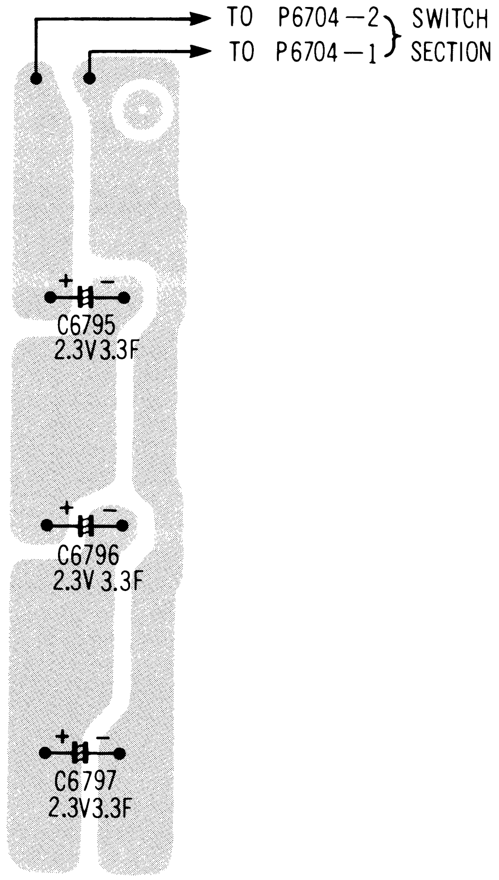
Selector P.C.B	
Q7001	C-2
Q7002	C-2
Q7003	C-2
Q7004	C-3
Q7005	C-2
Q7057	B-2
Q7058	B-2
Q7059	B-4
Q7060	B-4
IC7051	B-3

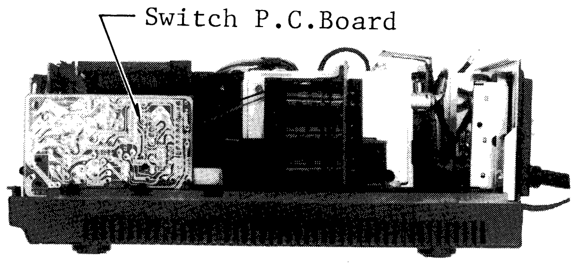
IR RECEIVER BOARD (VEP4053A)

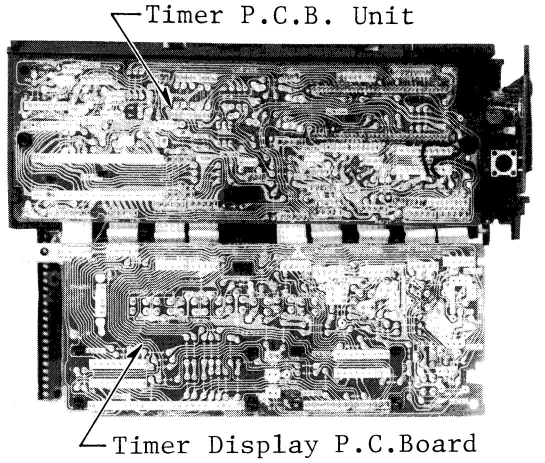

D6501
PN313
C6502
25V047
C6503
16V10
C6506
10V47
I3
C6504 4700P
I2
R6501
1K
C6501
16V10
R6502
12
R6503
150K
C6505
0.018
T6501
ELM7Q206A
8
4
1
I1
IC6501 μPC1373H

I1	P7007-4
I2	P7007-3
I3	P7007-1

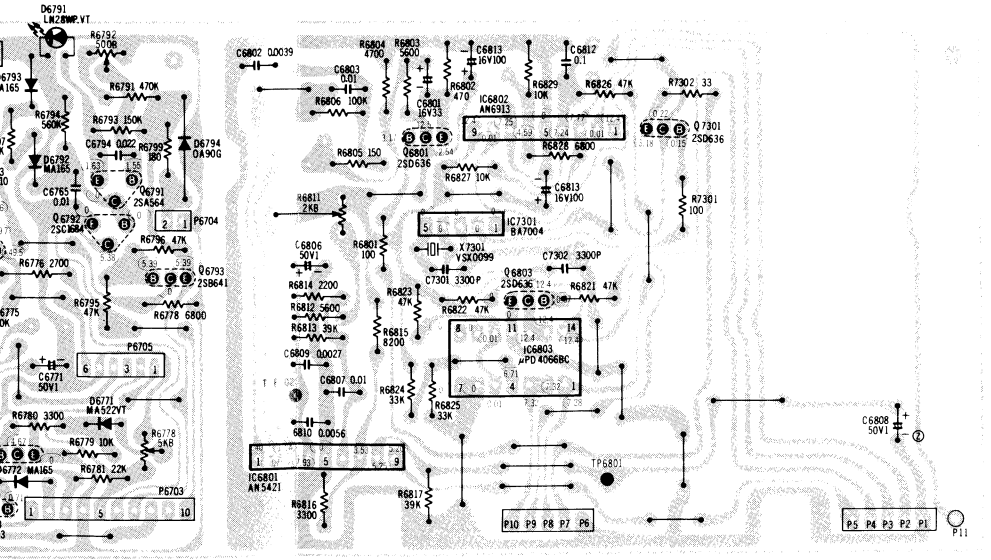
BACK UP BOARD (VEP4049A)


TO P6704-2
TO P6704-1
SWITCH
SECTION
C6795
2.3V3.3F
C6796
2.3V 3.3F
C6797
2.3V3.3F


Switch P.C.Board


Timer P.C.B. Unit
Timer Display P.C.Board

D (VEP4047A) SELECTOR SUB BOARD (VEP4048A)


D6791 LN28WP.VT
R6792
R6791 470K
R6793 150K
D6794 OA90G
C6794 0.022
D6792 MA165
C6765 0.01
Q6791 2SA564
Q6792 2SC1685
P6704
R6796 47K
Q6793 2SB641
R6776 2700
R6795 47K
R6778 6800
P6705
C6771 50V1
D6771 MA522VT
R6780 3300
R6779 10K
R6778 5KB
D6772 MA165
R6781 22K
P6703
C6802 0.0039
R6804 4700
R6803 5600
C6813 16V100
C6812 0.1
C6803 0.01
R6806 100K
R6829 10K
R6826 47K
R7302 33
R6802 470
IC6802 AN6913
Q7301 2SD636
R6805 150
Q6801 2SD636
R6828 6800
R6827 10K
C6813 16V100
R7301 100
R6811 2K8
IC7301 BA7004
C6806 50V1
R6801 100
X7301 VSX0099
C7301 3300P
C7302 3300P
Q6803 2SD636
R6821 47K
R6814 2200
R6812 5600
R6823 47K
R6822 47K
R6813 39K
R6815 8200
IC6803 μPD4066BC
C6809 0.0027
C6807 0.01
R6824 33K
R6825 33K
C6808 50V1
C6810 0.0056
IC6801 AN5421
R6816 3300
R6817 39K
TP6801
P10 P9 P8 P7 P6
P5 P4 P3 P2 P1
P11

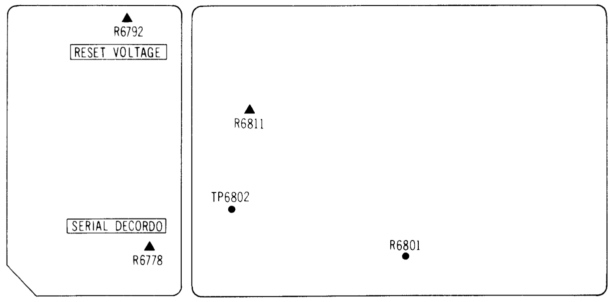
P6705 (TO TV DEMODULATOR SECTION)

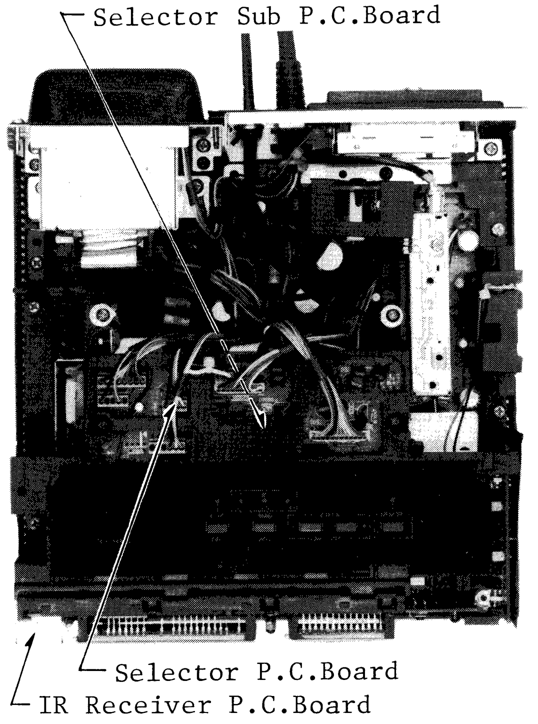
1	+5V BACK UP	A17
2	+5V	A14
3	——	——
4	SW	A16
5	GND	A15
6	-45V	A18

CONNECTION TO SELECTOR SECTION
FROM P1 ~ P11 TO G1 ~ G11

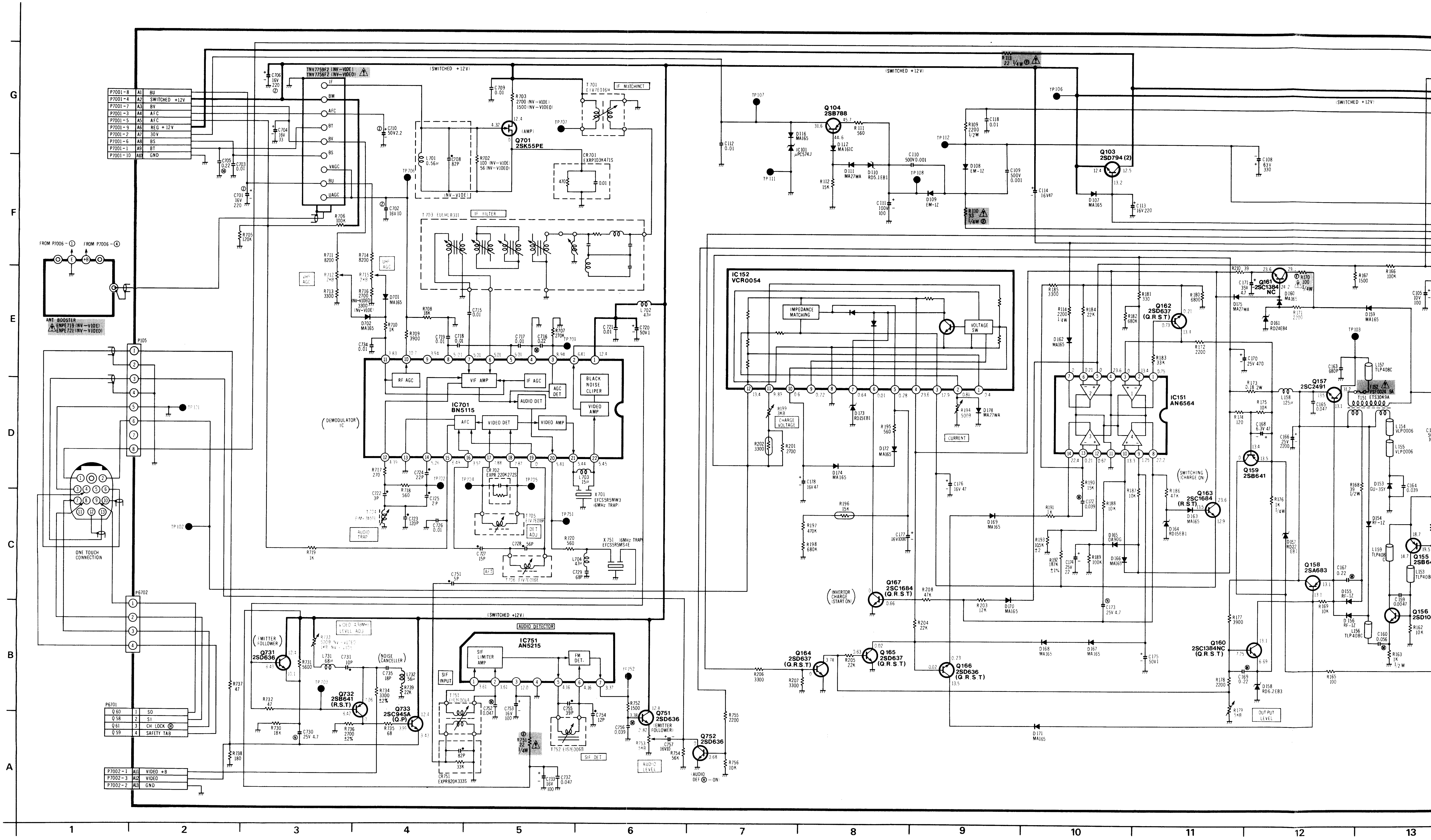
2 3 4 5

Switch, Selector Sub	
Q6771	B-2
Q6772	B-2
Q6773	A-2
Q6774	A-2
Q6791	B-2
Q6792	B-2
Q6793	B-2
Q6801	C-3
Q6803	B-4
Q7301	C-4
IC6801	A-3
IC6802	C-4
IC6803	B-4
IC7301	B-4

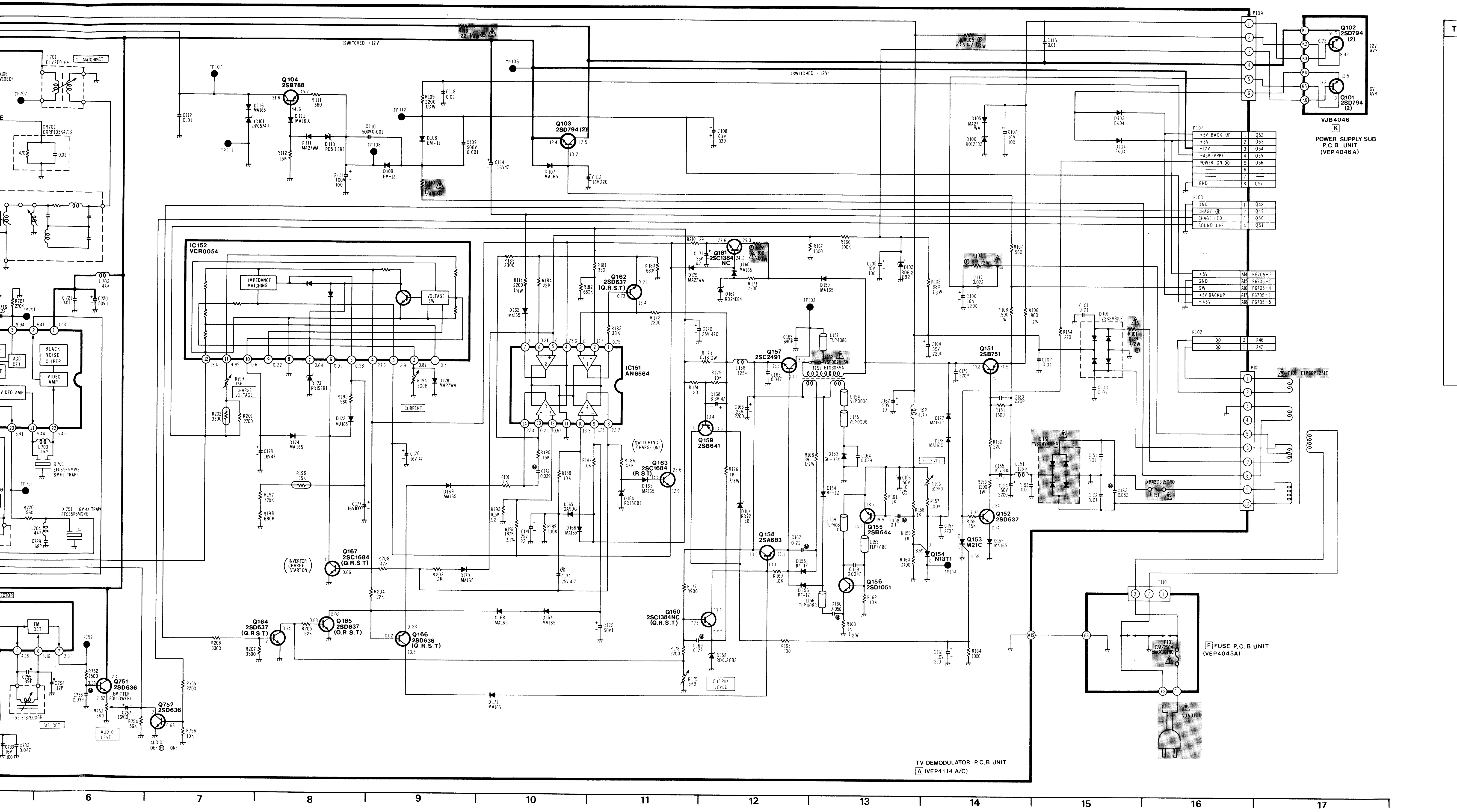

R6792
RESET VOLTAGE
SERIAL DECORDO
R6778
R6811
TP6802
R6801


Selector Sub P.C.Board
Selector P.C.Board
IR Receiver P.C.Board

TV DEMODULATOR SCHEMATIC DIAGRAM (TV DEMODULATOR, POWER SUPPLY SUB, FUSE, ANTENNA BOOSTER) ; NV-V10E/EO


G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12
13
P7001-8 A1 BU
P7001-4 A2 SWITCHED +12V
P7001-7 A3 BV
P7001-3 A4 AFC
P7001-5 A5 AFC
P7001-9 A6 REG +12V
P7001-2 A7 30V
P7001-6 A8 BS
P7001-1 A9 BT
P7001-10 A10 GND
TNV7759F2 (NV-V10E)
TNV7756F2 (NV-V10EO)
IF
BM
AFC
BT
BV
BS
VAGC
BU
UAGC
(SWITCHED +12V)
Q701 2SK55PE
(AMP)
T701 EIV7E016H
IF MATCHINCT
CR701 EXRP103K471S
T703 EUL4EB311
IF FILTER
FROM P7006-①
FROM P7006-④
ANT BOOSTER
ENPE719 (NV-V10E)
ENPE721 (NV-V10EO)
P105
UHF AGC
VHF AGC
IC701 BN5115
RF AGC
VIF AMP
IF AGC
AGC DET
BLACK NOISE CLIPER
AUDIO DET
VIDEO AMP
AFC
VIDEO DET
(DEMODULATOR IC)
X701 EFCS5R5MW3 (6MHz TRAP)
X751 (6MHz TRAP) EFCS5R5MS4E
CR702 EXPR 220K272S
T705 EIV7E016F
DET ADJ
T706 EIV7E016E
AFT
AUDIO TRAP
ONE TOUCH CONNECTION
P6702
P6701
Q60 1 S0
Q58 2 S1
Q61 3 CH LOCK
Q59 4 SAFETY TAB
P7002-1 A11 VIDEO +8
P7002-3 A12 VIDEO
P7002-2 A13 GND
(EMITTER FOLLOWER)
Q731 2SD636
VIDEO ARM LEVEL ADJ
(NOISE CANCELLER)
Q732 2SB641 (R.S.T)
Q733 2SC945A (Q.P)
AUDIO DETECTOR
IC751 AN5215
SIF LIMITER AMP
FM DET.
SIF INPUT
T751 EIS7E006A
T752 EIS7E006B
SIF DET
CR751 EXPR820K333S
R751 22 1/4W
Q751 2SD636 (EMITTER FOLLOWER)
Q752 2SD636
AUDIO LEVEL
AUDIO DEF Ⓗ — ON
Q104 2SB788
IC101 μPC574J
R113 22 1/4W
R110 33 1/4W
Q103 2SD794 (2)
IC152 VCR0054
IMPEDANCE MATCHING
VOLTAGE SW
CHARGE VOLTAGE
CURRENT
Q167 2SC1684 (Q.R.S.T)
(INVERTOR CHARGE (START ON))
Q164 2SD637 (Q.R.S.T)
Q165 2SD637 (Q.R.S.T)
Q166 2SD636 (Q.R.S.T)
IC151 AN6564
Q161 2SC1384 NC
Q162 2SD637 (Q.R.S.T)
Q163 2SC1684 (R.S.T)
(SWITCHING CHARGE ON)
Q159 2SB641
Q157 2SC2491
F152 VSF0024 5A
T151 ETS30K9A
Q158 2SA683
Q160 2SC1384NC (Q.R.S.T)
OUT PUT LEVEL
Q155 2SB64
Q156 2SD10

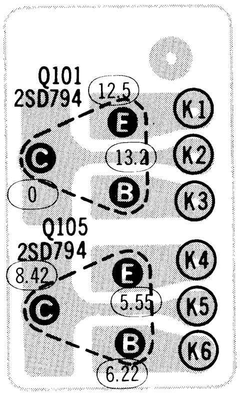
DEMODULATOR, POWER SUPPLY SUB, FUSE, ANTENNA BOOSTER) ; NV-V10E/EO



(SWITCHED +12V)
R113 22 1/4W
TP107
TP106
TP111
TP112
TP108
Q104 2SB788
Q103 2SD794 (2)
IC101 µPC574J
D116 MA165
D112 MA161C
D111 MA27WA
D110 RD5.1EB1
D109 EM-1Z
D108 EM-1Z
D107 MA165
R110 33 1/4W
R109 2200 1/2W
C110 500V0.001
C108 63V 330
C114 16V47
C113 16V 220
T701 E1V7E016H
MATCHINCT
CR701 EXRP103K471S
TP707
C721 0.01
C720 50V1
L702 47µ
R707 270K
TP701
AGC DET
BLACK NOISE CLIPER
VIDEO AMP
L703 15µ
X701 EFCS5R5MW3 (6MHz TRAP)
TP751
R720 560
X751 6MHz TRAP EFCS5R5MS4E
L704 47µ
C729 68P
FM DET.
Q751 2SD636 (EMITTER FOLLOWER)
Q752 2SD636
T752 EIS7E0068
SIF DET
AUDIO LEVEL
AUDIO DEF H → ON
IC152 VCR0054
IMPEDANCE MATCHING
VOLTAGE SW
CHARGE VOLTAGE
CURRENT
IC151 AN6564
Q162 2SD637 (Q.R.S.T)
Q163 2SC1684 (R.S.T)
(SWITCHING CHARGE ON)
Q167 2SC1684 (Q.R.S.T)
(INVERTOR CHARGE (START ON))
Q164 2SD637 (Q.R.S.T)
Q165 2SD637 (Q.R.S.T)
Q166 2SD636 (Q.R.S.T)
Q161 2SC1384 NC
R170 100 1/4W
Q157 2SC2491
F152 VSF0024 5A
T151 ETS30K9A
Q159 2SB641
Q158 2SA683
Q160 2SC1384NC (Q.R.S.T)
Q155 2SB644
Q156 2SD1051
Q154 N13T1
Q153 M21C
Q152 2SD637
Q151 2SB751
OUT PUT LEVEL
R103 3.3 1/2W
R105 4.7 1/2W
D101 TVSS2VB10F1
R101 0.39 1/2W
D151 TVSS4VB20F4
XBA2C315TR0 F151
T101 ETP66PS251E
P109
P104
+5V BACK UP | Q52
+5V | Q53
+12V | Q54
-45V (VPP) | Q55
POWER ON H | Q56
GND | Q57
P103
GND | Q48
CHAGE H | Q49
CHAGE LED | Q50
SOUND DEF | Q51
+5V | A14 | P6705-2
GND | A15 | P6705-3
SW | A16 | P6705-4
+5V BACKUP | A17 | P6705-1
-45V | A18 | P6705-5
P102
P101
Q102 2SD794 (2)
Q101 2SD794 (2)
12V AVR
6V AVR
VJB4046
K
POWER SUPPLY SUB P.C.B UNIT (VEP4046A)
P110
F101 T2A/250V XBA2C20TR0
VJA0111
F FUSE P.C.B UNIT (VEP4045A)
TV DEMODULATOR P.C.B UNIT
A (VEP4114 A/C)
6
7
8
9
10
11
12
13
14
15
16
17

POWER SUPPLY SUB BOARD
(VEP4046A)

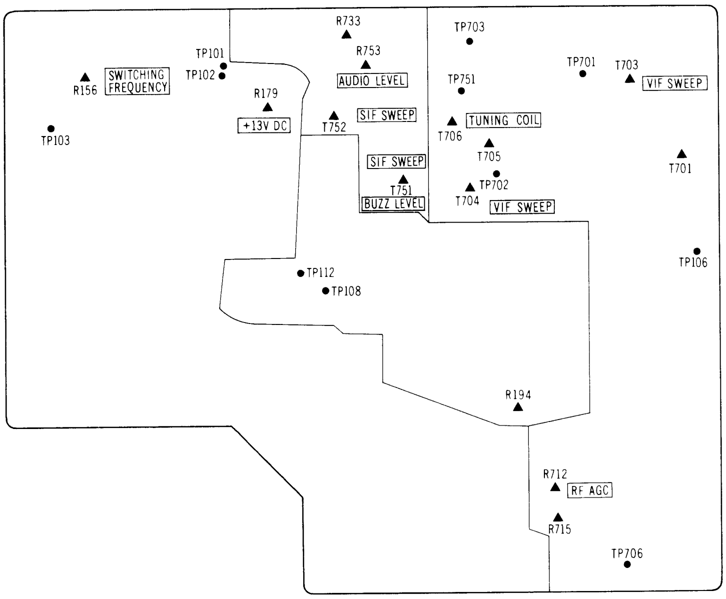
TV Demodulator	
Q101	G-17
Q102	G-17
Q103	F-10
Q104	G-8
Q151	E-14
Q152	C-14
Q153	C-14
Q154	C-14
Q155	C-13
Q156	C-13
Q157	D-12
Q158	C-12
Q159	D-12
Q160	B-12
Q161	E-12
Q162	E-11
Q163	C-11
Q164	B-8
Q165	B-8
Q166	B-9
Q167	C-8
Q701	G-5
Q731	B-3
Q732	B-4
Q733	A-4
Q751	A-6
Q752	A-7
IC101	G-7
IC151	D-10
IC152	E-8
IC701	D-5
IC751	B-5

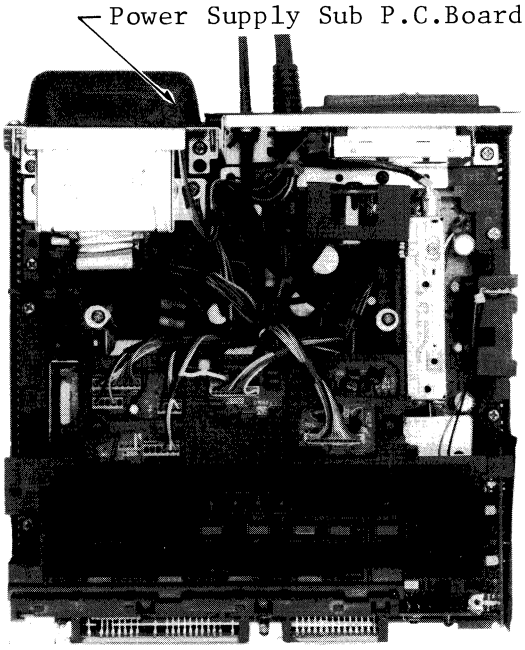

Q101
2SD794
12.5
E
K1
C
13.2
K2
0
B
K3
Q105
2SD794
8.42
E
K4
C
5.55
K5
B
K6
6.22

CONNECTION TO TV
DEMODULATOR SECTION

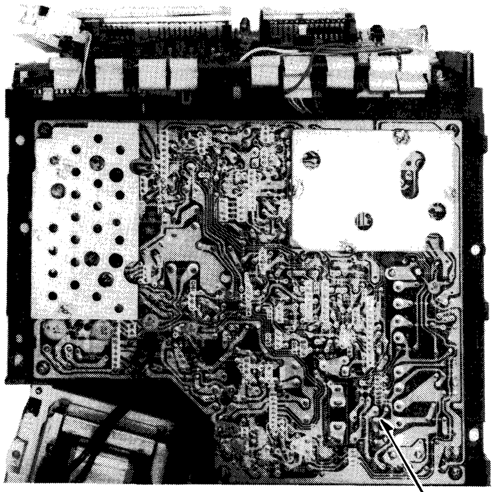
K1	P109 — 4
K2	P109 — 2
K3	P109 — 1
K4	P109 — 6
K5	P109 — 5
K6	P109 — 3

Demodu	
Q103	A-5
Q104	B-4
Q151	C-2
Q152	C-3
Q153	C-3
Q154	E-2
Q155	E-2
Q156	D-2
Q157	D-2
Q158	D-2
Q159	D-3
Q160	D-3
Q161	C-3
Q162	C-4
Q163	B-5
Q164	C-4
Q165	C-4
Q166	B-5
Q167	C-5
Q701	D-6
Q730	E-5
Q732	E-5
Q733	E-4
Q751	E-4
Q752	E-3
IC101	B-4
IC151	C-5
IC701	D-5


R733
R753
AUDIO LEVEL
TP703
TP101
TP102
R156
SWITCHING FREQUENCY
TP701
T703
VIF SWEEP
TP751
R179
+13V DC
T752
SIF SWEEP
TUNING COIL
T706
T705
TP103
SIF SWEEP
T751
BUZZ LEVEL
TP702
T704
VIF SWEEP
T701
TP106
TP112
TP108
R194
R712
RF AGC
R715
TP706



Power Supply Sub P.C.Board



TV Demodulator P.C.Board

TV DEMODULATOR BOARD (NV-V10E; VEP4114A) (NV-V10EO; VEP4114C) FUSE BOARD (VEP4045A)

CONNECTION TO SELECTOR SECTION

A1	BU	P7002-8
A2	+12V	P7002-4
A3	BV	P7002-7
A4	AFC	P7002-3
A5	AFC(FROM IC701)	P7002-5
A6	REG 12V	P7002-9
A7	+30V	P7002-2
A8	BS	P7002-6
A9	BT	P7002-1
A10	GND	P7002-10

P6701 (TO TIMER SECTION)

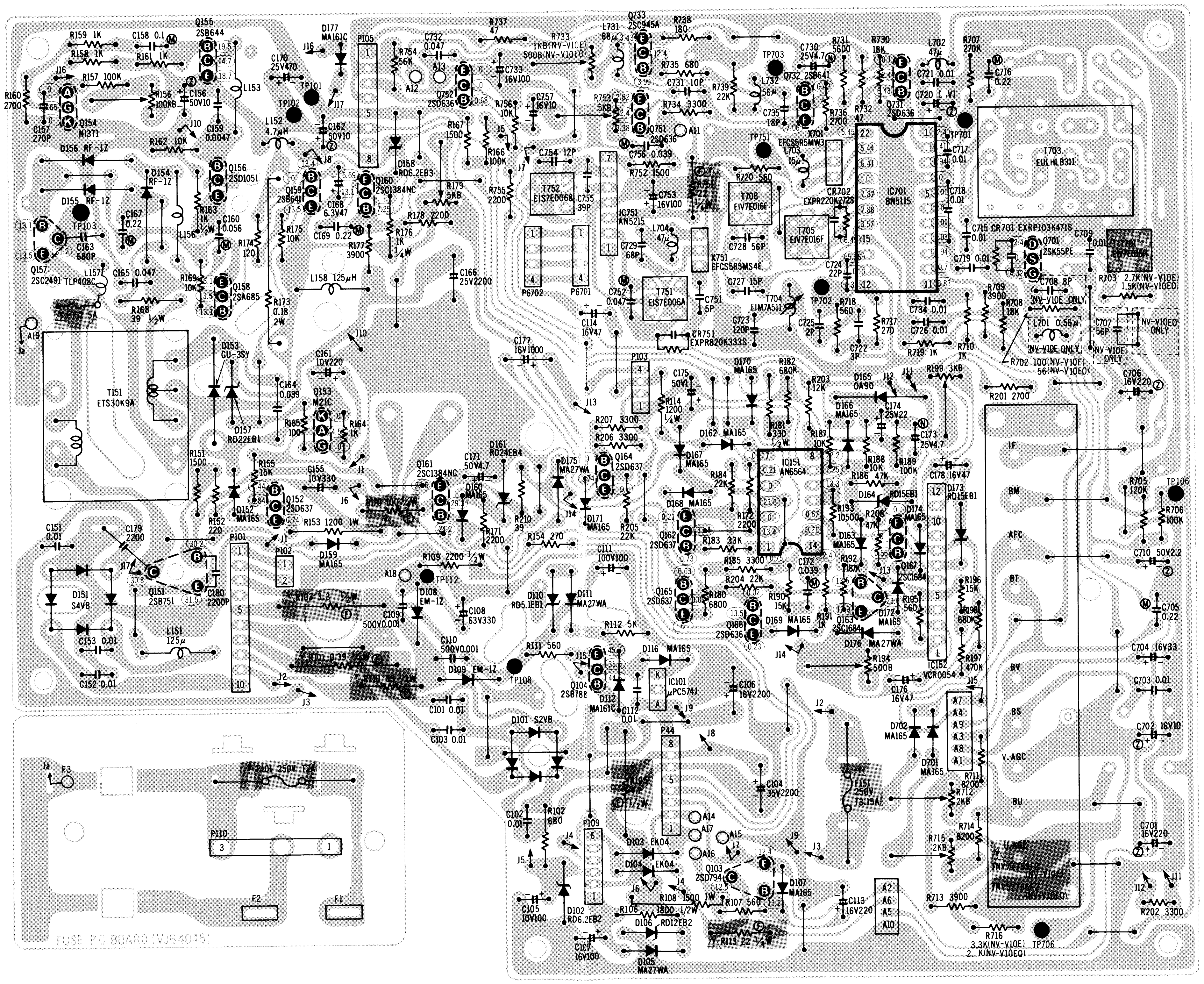
1	SO	Q60
2	SI	Q58
3	CH LOCK REC Ⓗ	Q61
4	SAFETY TAB	Q59

P709 (TO POWER SUPPLY SUB SECTION)

1	K3
2	K2
3	K6
4	K1
5	K5
6	K4

P105, P6702 TO ONE TOUCH CONNECTOR

P101 TO POWER TRANSFORMER


E
D
C
B
A
1
2
3
4
5
6
7
IC701 BN5115
IC751 AN5215
IC151 AN6564
IC152 VCR0054
IC101 μPC574J
T151 ETS30K9A
T703 EULHLB311
T752 EIS7E006B
T706 EIV7E016E
T705 EIV7E016F
T751 EIS7E006A
X701 EFCS5R5MW3
X751 EFCS5R5MS4E
P105
P6702
P6701
P101
P102
P103
P104
P109
P110
P44
F151 250V T3.15A
F152 5A
F101 250V T2A
F1
F2
F3
TP101
TP102
TP103
TP106
TP108
TP112
TP701
TP702
TP703
TP706
TP751
IF
BM
AFC
BT
BV
BS
V.AGC
BU
U.AGC
TNV77759F2 (NV-V10E)
TNV57756F2 (NV-V10EO)
FUSE PC BOARD (VJ64045)

P104 (TO TIMER SECTION)

1	+5V BACK UP	Q52
2	+5V	Q53
3	+12V	Q54
4	−45V (VPP)	Q55
5	POWER ON	Q56
6	—	—
7	—	—
8	GND	Q57

P103 (TO TIMER SECTION)

1	GND	Q48
2	CHARGE Ⓗ	Q49
3	CHARGE LED	Q50
4	SOUND DEF	Q51

CONNECTION TO SWITCH SECTION)

A14	+5V	P6705-2
A15	GND	P6705-5
A16	SW	P6705-4
A17	+5V BACK UP	P6705-1
A18	−45V	P6705-6

P102 (TO TIMER SECTION)

1	Ⓗ	Q47
2	Ⓗ	Q46

TV DEMODULATOR BOARD (NV-V10B; VEP4114B)

CONNECTION TO SELECTOR SECTION

A1	BU	P7002-8
A2	+12V	P7002-4
A3	BV	P7002-7
A4	AFC	P7002-3
A5	AFC (FROM IC701)	P7002-5
A6	REG 12V	P7002-9
A7	+30V	P7002-2
A8	BS	P7002-6
A9	BT	P7002-1
A10	GND	P7002-10

P6701 (TO TIMER SECTION)

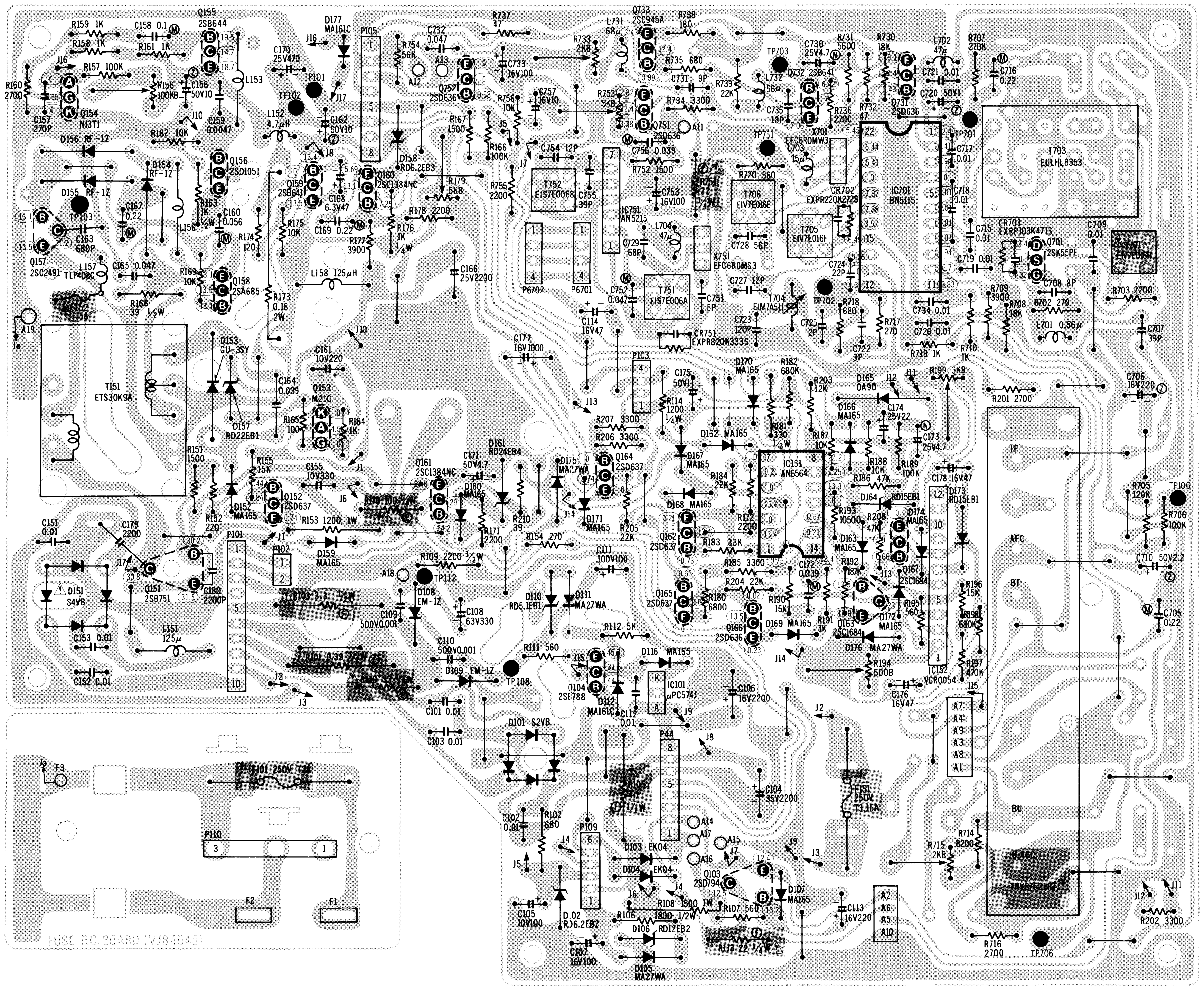
1	SO	Q60
2	SI	Q58
3	CH LOCK REC Ⓗ	Q61
4	SAFETY TAB	Q59

P709 (TO POWER SUPPLY SUB SECTION)

1	K3
2	K2
3	K6
4	K1
5	K5
6	K4

P105, P6702 TO ONE TOUCH CONNECTOR

P101 TO POWER TRANSFORMER



E
D
C
B
A
1
2
3
4
5
6
7
T151 ETS30K9A
IC701 BN5115
IC751 AN5215
IC151 AN6564
IC152 VCR0054
IC101 μPC574J
T703 EULHL8353
T752 EIS7E0068
T751 EIS7E006A
T706 EIV7E016E
T705 EIV7E016F
T701 EIV7E016H
U.AGC ENV87521F2
F101 250V T2A
F151 250V T3.15A
FUSE P.C.BOARD (VJB4045)
P101
P102
P103
P104
P105
P109
P110
P44
P6701
P6702
TP101
TP102
TP103
TP106
TP108
TP112
TP701
TP702
TP703
TP706
TP751
IF
AFC
BT
BU
F1
F2
F3

P104 (TO TIMER SECTION)

1	+5V BACK UP	Q52
2	+5V	Q53
3	+12V	Q54
4	−45V (VPP)	Q55
5	POWER ON	Q56
6	—	—
7	—	—
8	GND	Q57

P103 (TO TIMER SECTION)

1	GND	Q48
2	CHARGE Ⓗ	Q49
3	CHARGE LED	Q50
4	SOUND DEF	Q51

CONNECTION TO SWITCH SECTION)

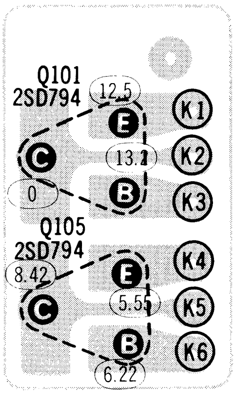
A14	+5V	P6705-2
A15	GND	P6705-5
A16	SW	P6705-4
A17	+5V BACK UP	P6705-1
A18	−45V	P6705-6

P102 (TO TIMER SECTION)

1	Ⓗ	Q47
2	Ⓗ	Q46

POWER SUPPLY SUB BOARD
(VEP4046A)

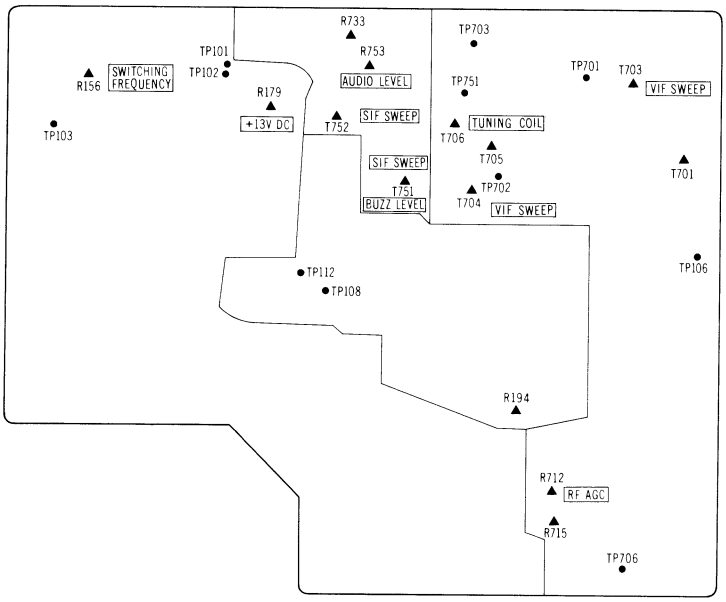
Demcdu	
Q103	A-5
Q104	B-4
Q151	C-2
Q152	C-3
Q153	C-3
Q154	E-2
Q155	E-2
Q156	D-2
Q157	D-2
Q158	D-2
Q159	D-3
Q160	D-3
Q161	C-3
Q162	C-4
Q163	B-5
Q164	C-4
Q165	C-4
Q166	B-5
Q167	C-5
Q701	D-6
Q730	E-5
Q732	E-5
Q733	E-4
Q751	E-4
Q752	E-3
IC101	B-4
IC151	C-5
IC701	D-5


Q101
2SD794
12.5
E
C
13.2
B
0
Q105
2SD794
8.42
E
C
5.55
B
6.22
K1
K2
K3
K4
K5
K6

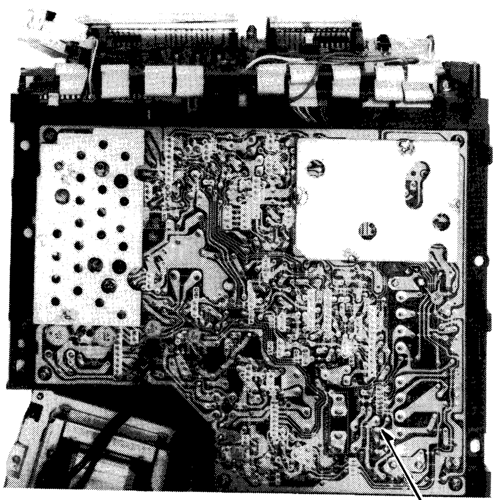
CONNECTION TO TV
DEMODULATOR SECTION

K1	P109 — 4
K2	P109 — 2
K3	P109 — 1
K4	P109 — 6
K5	P109 — 5
K6	P109 — 3

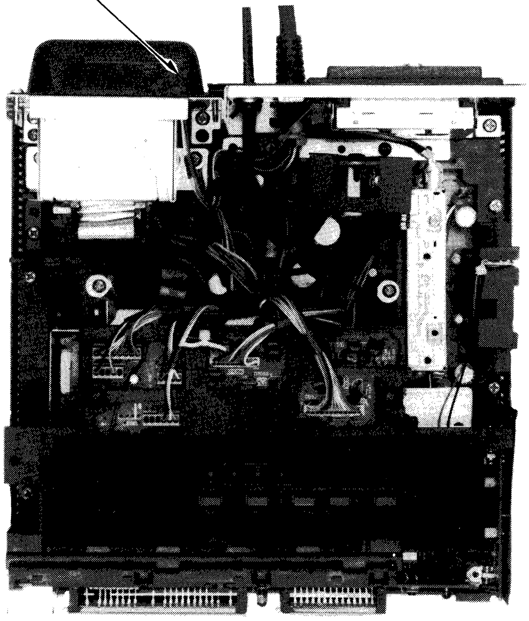
TV Demodulator	
Q101	G-17
Q102	G-17
Q103	F-10
Q104	G-8
Q151	E-14
Q152	C-14
Q153	C-14
Q154	C-14
Q155	C-13
Q156	B-13
Q157	D-12
Q158	C-12
Q159	D-12
Q160	B-12
Q161	F-12
Q162	E-11
Q163	C-11
Q164	B-8
Q165	B-8
Q166	B-9
Q167	C-8
Q701	G-5
Q731	B-3
Q732	B-4
Q733	A-4
Q751	A-6
Q752	A-7
IC101	G-7
IC151	D-10
IC152	E-8
IC701	D-5
IC751	B-5


R733
R753
AUDIO LEVEL
TP703
TP101
TP102
R156
SWITCHING FREQUENCY
R179
+13V DC
T752
SIF SWEEP
TP751
TP701
T703
VIF SWEEP
TUNING COIL
T706
T705
TP103
SIF SWEEP
T751
BUZZ LEVEL
TP702
T704
VIF SWEEP
T701
TP112
TP108
TP106
R194
R712
RF AGC
R715
TP706

Power Supply Sub P.C.Board

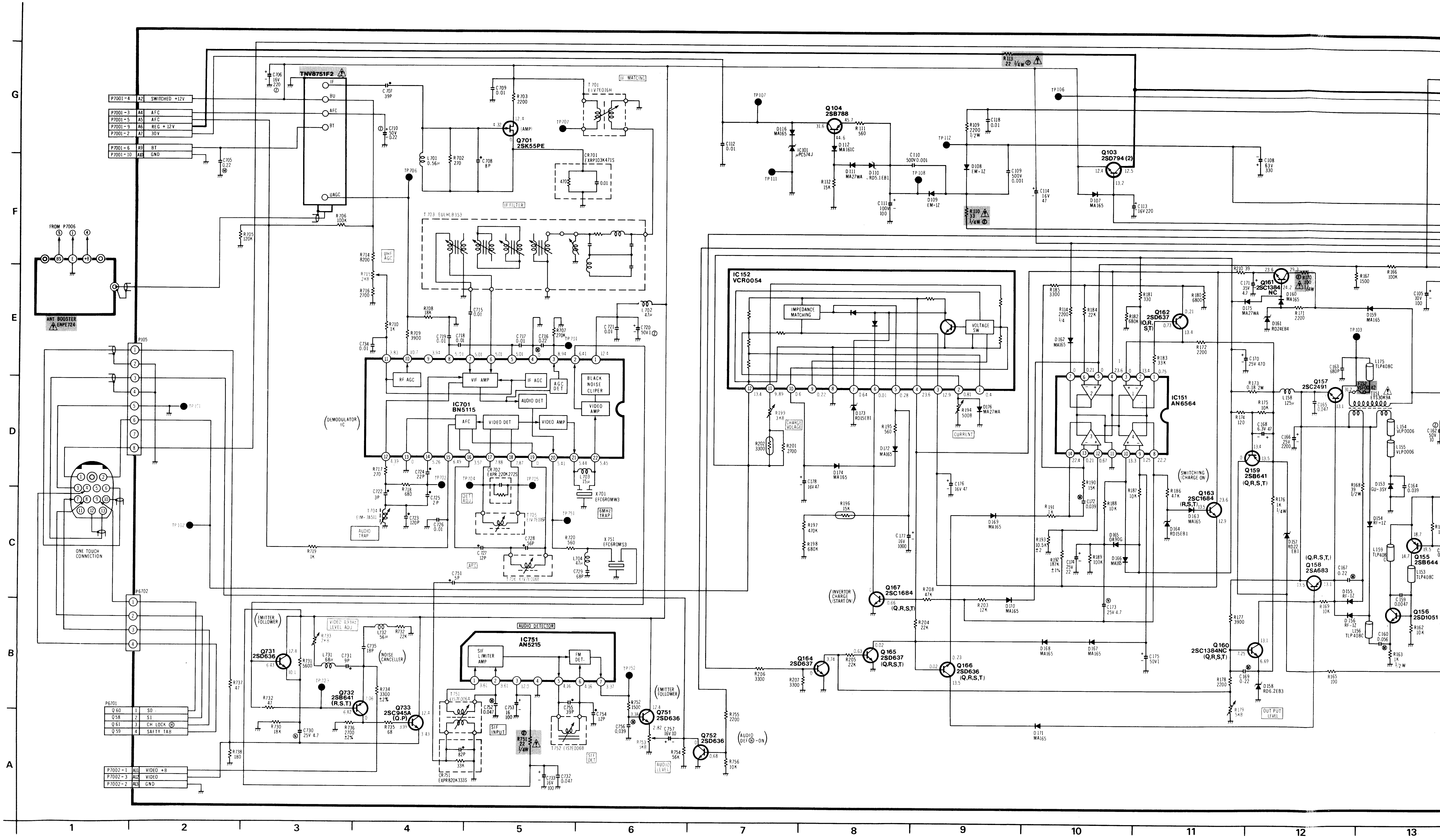


TV Demodulator P.C.Board



TV DEMODULATOR SCHEMATIC DIAGRAM (TV DEMODULATOR, POWER SUPPLY SUB, FUSE, ANTENNA BOOSTER) ; NV-V10B

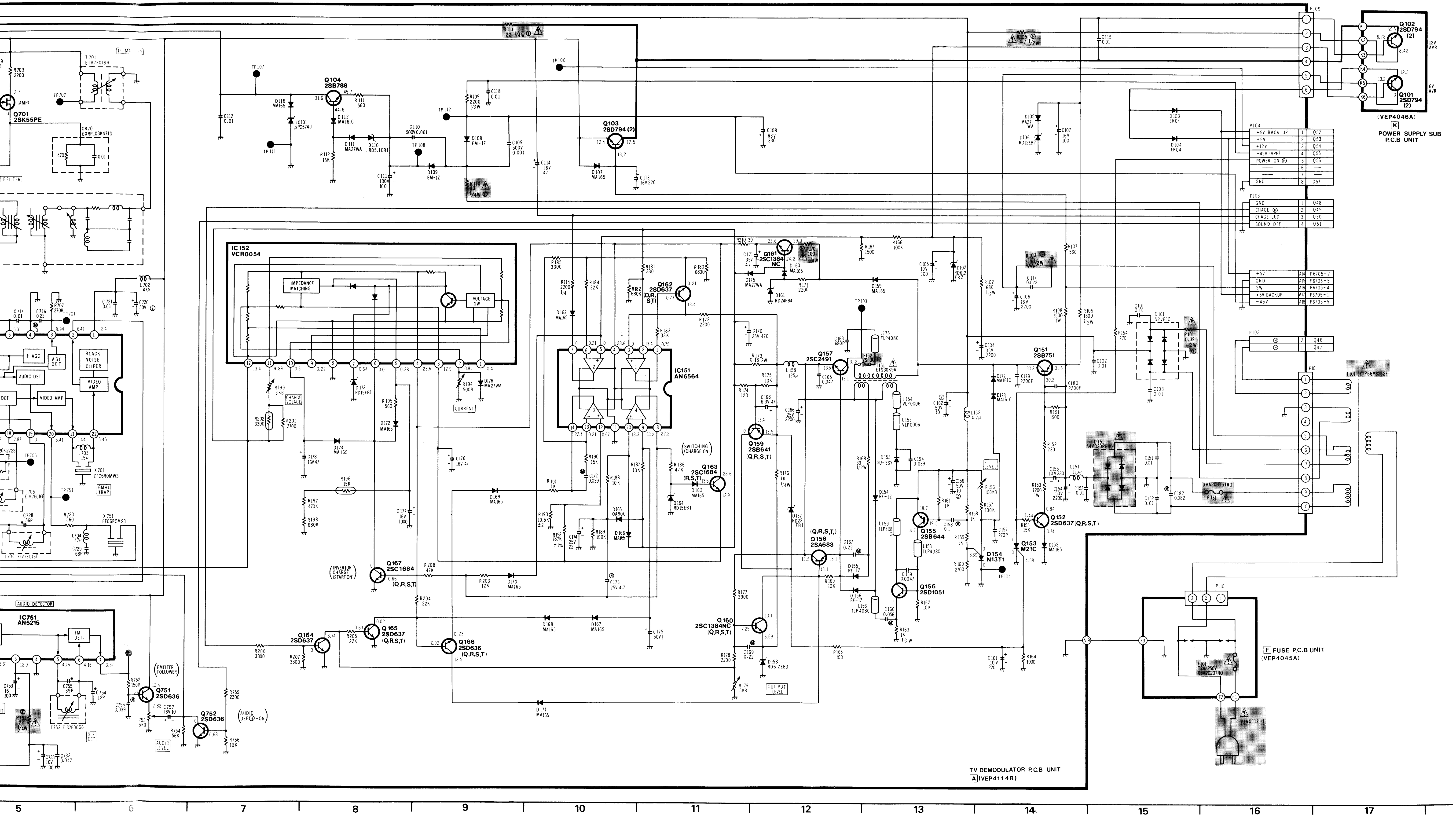
FUSE BO



G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12
13
P7001-4 A2 SWITCHED +12V
P7001-3 A4 AFC
P7001-5 A5 AFC
P7001-9 A6 REG +12V
P7001-2 A7 30V
P7001-6 A9 BT
P7001-10 A10 GND
TNV8751F2
IF
BU
AFC
BT
UAGC
Q701
2SK55PE
(AMP)
T701
IF MATCHING
CR701
EXRP103K471S
IF FILTER
T703 EULHLB353
UHF AGC
FROM P7006
BS
E
+B
ANT BOOSTER
ENPE724
P105
IC701
BN5115
RF AGC
VIF AMP
IF AGC
AGC DET
BLACK NOISE CLIPER
AUDIO DET
AFC
VIDEO DET
VIDEO AMP
(DEMODULATOR IC)
AUDIO TRAP
DET ADJ
6MHz TRAP
X701 EFC6R0MW3
X751 EFC6R0MS3
AFC
ONE TOUCH CONNECTION
P6702
P6701
Q60 1 S0
Q58 2 S1
Q61 3 CH LOCK
Q59 4 SAFTY TAB
P7002-1 A11 VIDEO +B
P7002-3 A12 VIDEO
P7002-2 A13 GND
(EMITTER FOLLOWER)
Q731 2SD636
VIDEO 4.43MHz LEVEL ADJ
(NOISE CANCELLER)
Q732 2SB641 (R.S.T)
Q733 2SC945A (Q.P)
AUDIO DETECTOR
IC751
AN5215
SIF LIMITER AMP
FM DET.
SIF INPUT
SIF DET
CR751 EXPR820K333S
T751 EIS7E006A
T752 EIS7E006B
R751 22 1/4W
(EMITTER FOLLOWER)
Q751 2SD636
Q752 2SD636
AUDIO LEVEL
(AUDIO DEF ON)
R113 22 1/4W
Q104 2SB788
IC101 μPC574J
D116 MA165
D112 MA161C
D111 MA27WA
D110 RD5.1EB1
D108 EM-1Z
D109 EM-1Z
R110 33 1/4W
Q103 2SD794 (2)
D107 MA165
IC152
VCR0054
IMPEDANCE MATCHING
VOLTAGE SW
CHARGE VOLTAGE
CURRENT
D173 RD15EB1
D174 MA165
D172 MA165
D176 MA27WA
Q167 2SC1684
(INVERTOR CHARGE START ON)
Q164 2SD637
Q165 2SD637 (Q.R.S.T)
Q166 2SD636 (Q.R.S.T)
IC151
AN6564
Q161 2SC1384 NC
Q162 2SD637 (Q.R.S.T)
Q163 2SC1684 (R.S.T)
(SWITCHING CHARGE ON)
D175 MA27WA
D160 MA165
D161 RD24EB4
D159 MA165
D162 MA165
D163 MA165
D164 RD15EB1
D165 OA90G
D166 MA165
D167 MA165
D168 MA165
D169 MA165
D170 MA165
D171 MA165
Q157 2SC2491
Q159 2SB641 (Q.R.S.T)
Q158 2SA683 (Q.R.S.T)
Q160 2SC1384NC (Q.R.S.T)
Q155 2SB644
Q156 2SD1051
T151 ETS30K9A
F152
L154 VLP0006
L155 VLP0006
L175 TLP408C
L153 TLP408C
L156 TLP408C
L159 TLP408C
D153 GU-3SY
D154 RF-1Z
D155 RF-1Z
D156 RF-1Z
D157 RD22EB1
D158 RD6.2EB3
OUT PUT LEVEL
TP101
TP102
TP103
TP106
TP107
TP108
TP111
TP112
TP701
TP702
TP703
TP704
TP705
TP706
TP707
TP751
TP752

(TV DEMODULATOR, POWER SUPPLY SUB, FUSE, ANTENNA BOOSTER) ; NV-V10B

FUSE BOARD (VEP4045A)


IC152 VCR0054
IMPEDANCE MATCHING
VOLTAGE SW
IC151 AN6564
IC751 AN5215
AUDIO DETECTOR
FM DET.
IF AGC
AGC DET
BLACK NOISE CLIPER
VIDEO AMP
AUDIO DET
IF FILTER
6MHZ TRAP
Q701 2SK55PE
Q104 2SB788
Q103 2SD794 (2)
Q102 2SD794 (2)
Q101 2SD794 (2)
Q161 2SC1384 NC
Q162 2SD637 (Q,R,S,T)
Q163 2SC1684 (R,S,T)
Q157 2SC2491
Q151 2SB751
Q159 2SB641 (Q,R,S,T)
Q158 2SA683 (Q,R,S,T)
Q155 2SB644
Q156 2SD1051
Q152 2SD637 (Q,R,S,T)
Q153 M21C
D154 N13T1
Q160 2SC1384NC (Q,R,S,T)
Q167 2SC1684 (Q,R,S,T)
Q164 2SD637
Q165 2SD637 (Q,R,S,T)
Q166 2SD636 (Q,R,S,T)
Q751 2SD636
Q752 2SD636
(INVERTOR CHARGE (START ON))
(SWITCHING (CHARGE ON))
(EMITTER FOLLOWER)
(AUDIO DEF Ⓗ-ON)
CHARGE VOLTAGE
CURRENT
OUT PUT LEVEL
AUDIO LEVEL
P109
P104
+5V BACK UP
+5V
+12V
-45V (VPP)
POWER ON Ⓗ
GND
P103
CHAGE Ⓗ
CHAGE LED
SOUND DEF
P102
P101
P110
T101 ETP6PS252E
D151 S4VB20RB4Q
XBA2C315TRO F151
D101 S2VB10
F101 T2A/250V XBA2C20TRO
VJA0312-1
(VEP4046A)
K POWER SUPPLY SUB P.C.B UNIT
F FUSE P.C.B UNIT (VEP4045A)
TV DEMODULATOR P.C.B UNIT
A (VEP4114B)
5
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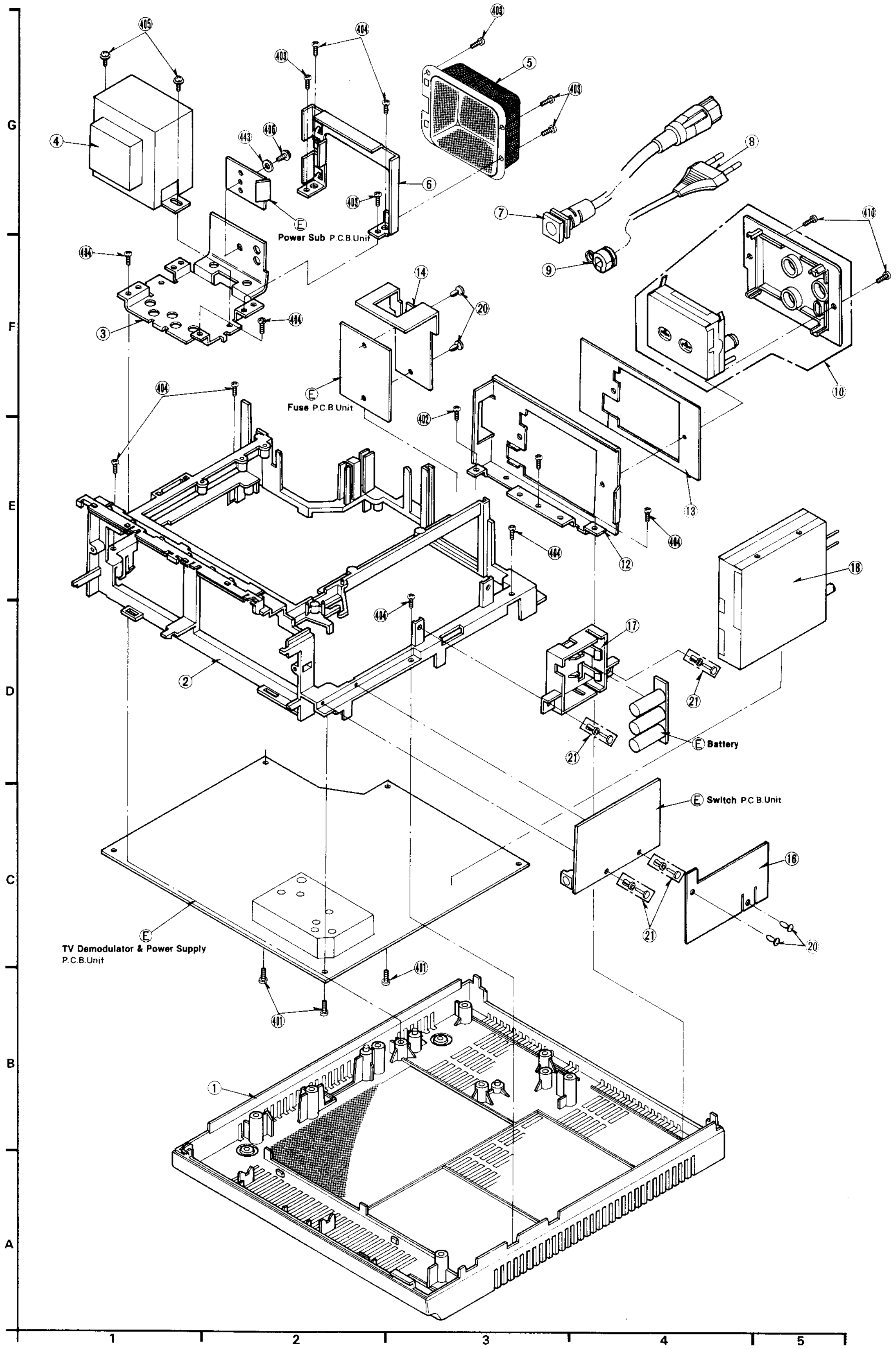
17

EXPLODED VIEWS ❶ *Programmable Timer/Tuner Section -(1)*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406
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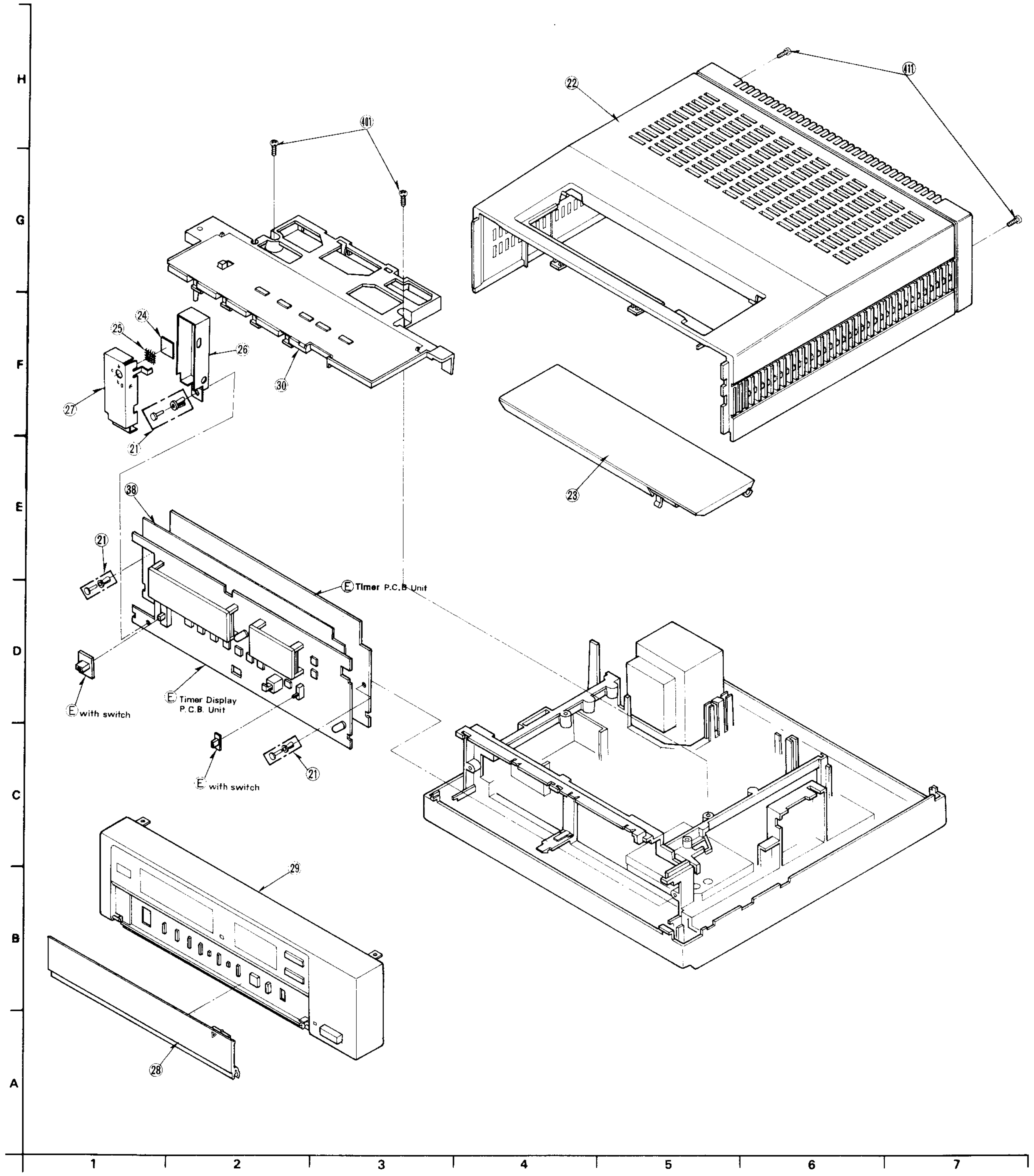
403
8
7
Ⓔ Power Sub P.C.B.Unit
404
9
410
3
404
14
20
Ⓔ Fuse P.C.B.Unit
404
402
10
13
404
404
12
18
404
17
2
21
21
Ⓔ Battery
Ⓔ Switch P.C.B.Unit
16
21
20
Ⓔ TV Demodulator & Power Supply P.C.B.Unit
401
401
1

❷ *Programmable Timer/Tuner Section -(2)*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411
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401
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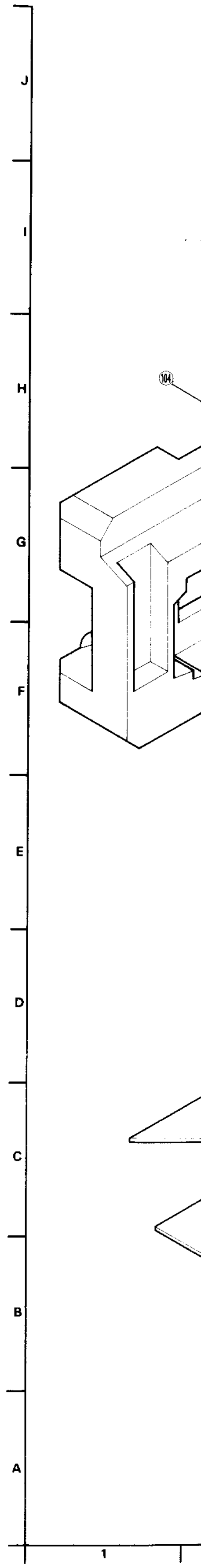
23
38
21
Ⓔ Timer P.C.B.Unit
Ⓔ with switch
Ⓔ Timer Display P.C.B. Unit
Ⓔ with switch
21
29
28

❸ *IR Re*


J
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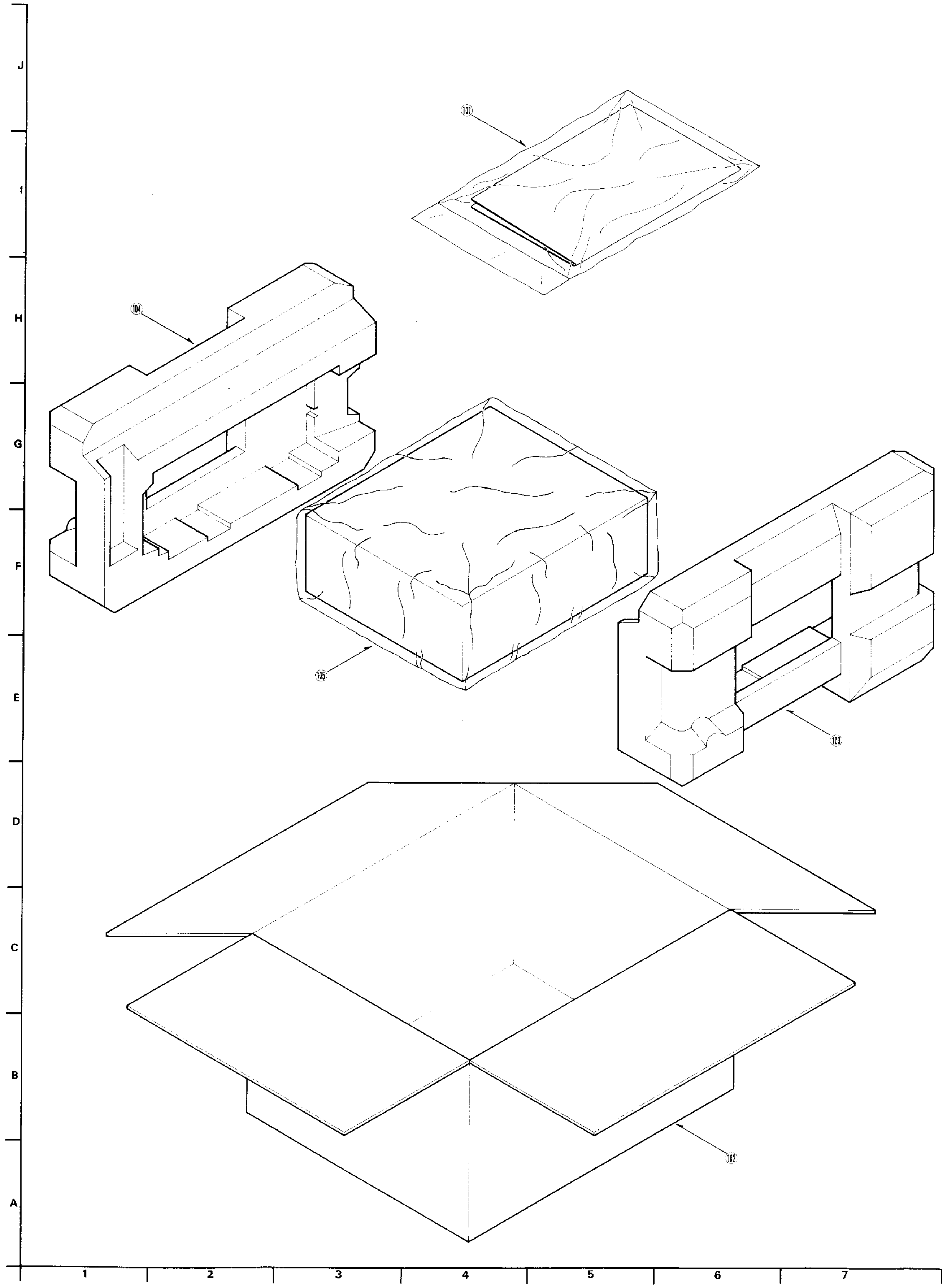
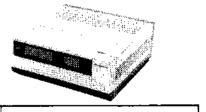
404

❸ *IR Remote Controller Transmitter Section*



MECHANICAL REPLACEMENT PARTS LIST

Model No. NV-V10E/B/EO



Notes:
1. ∗ Be sure to make your orders of replacement parts according to this list.

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
1 (1)	VYK0347	Bottom Case Unit	1	
2 (1)	VMD0352	Chassis Frame	1	
3 (1)	VMA5787	Power Transformer Angle	1	
4 (1)	ETP66PS251E	Power Transformer	1	NV-V10E,EO ⚠
4 (1)	ETP66PE252E	Power Transformer	1	NV-V10B ⚠
5 (1)	VGK1047	Power Transformer Cover	1	
6 (1)	VMA5787	Angle, Power Transformer Cover	1	
7 (1)	VEC0287	13 PIN Cable	1	
8 (1)	VJA0111	AC Cord	1	NV-10E/EO ⚠
8 (1)	VJA0112	AC Cord	1	NV-10B ⚠
9 (1)	VJF0017	AC Cord Bushing	1	⚠
10 (1)	ENPE719	Antenna Terminal Unit	1	NV-V10E ⚠
10 (1)	ENPE724	Antenna Terminal Unit	1	NV-V10B ⚠
10 (1)	ENPE721	Antenna Terminal Unit	1	NV-V10EO ⚠
	VJH0233	Mounting Angle For Antenna Terminal Unit	1	
12 (1)	VMA6010	Rear Angle	1	
13 (1)	VGN1938	Rear Angle Plate	1	NV-V10E
13 (2)	VGN1965	Rear Angle Plate	1	NV-V10EO
13 (2)	VGN1966	Rear Angle Plate	1	NV-V10B
14 (1)	VMZ0434	Fuse P.C.Board Barrier	1	
16 (1)	VMZ0355	Power Switch Board Barrier	1	
17 (1)	VKM0124	Battery Cover	1	
18 (1)	TNV77759F2	Tuner Unit	1	NV-V10E
18 (1)	TNV87521F2	Tuner Unit	1	NV-V10B
18 (1)	TNV57756F2	Tuner Unit	1	NV-V10EO
20 (1)	TMM6490	Clip	4	
21 (1,2)	TMM16489	Rivet	7	
22 (2)	VYP0575	Top Case	1	
23 (2)	VYK0423	Channel Preset Door	1	NV-V10E,EO
23 (2)	VYK0429	Channel Preset Door	1	NV-V10B
24 (2)	VKW0147	Remote Control Receiver Filter	1	
25 (2)	VSC0806	Remote Control Receiver Shield Plate	1	
26 (2)	VSC0800	Shield Case (1)	1	
27 (2)	VSC0801	Shield Case (2)	1	
28 (2)	VKF0463	Timer Control Door	1	
29 (2)	VYP0669	Front Panel	1	
30 (2)	VXU0205	Channel Preset Bracket	1	NV-V10E,EO
30 (2)	VXU0207	Channel Preset Bracket	1	NV-V10B
38 (2)	VMZ0354	Timer P.C.Board Barrier	1	

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
101 (3)	VQF0867	Fan Bag	1	NV-V10E,EO
101 (3)	VQF0868	Fan Bag	1	NV-V10B
102 (3)	VPG1144	Packing Case	1	NV-V10E
102 (3)	VPG1167	Packing Case	1	NV-V10B
102 (3)	VPG1166	Packing Case	1	NV-V10EO
103 (3)	VPN0779	Right Cushion	1	
104 (3)	VPN0780	Left Cushion	1	
105 (3)	VPF0167	Polyethlene Bag	1	
401 (1,2)	XTV3+10A		8	
402 (1)	XTB4+12A		10	
403 (1,2)	XTV3+8B			
404 (1)	XTN4+12A			
405 (1)	XYN4+F8S			
406 (1)	XYN3+C8			
407 (1)	XYE3+EB8			
408 (1)	XYE4+E8			
409 (1)	XYN3+E5		1	
411 (1,2)	XSB3+8FZS			
412 (2)	XWA3			
413 (1)	XWG3F10			

ELECTRICAL REPLACEMENT PARTS LIST

Model No. NV-V10E/B/EO

Notes:

1. * Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
   Components identified by ⚠ have special characteristics important for safety.
   When replacing any of these components, use only the original ones.
3. Unless otherwise specified,
   All resistors are in OHMS (Ω), 1/8 W ± 5% carbon. K=1,000Ω, M=1,000KΩ.
   All capacitors are in MICROFARADS (μF), ± 10% P=μμF.

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
		VEP4114A	TV DEMODULATOR	1	NV-V10E
			P.C.B.UNIT		
		VEP4114B	TV DEMODULATOR	1	NV-V10B
			P.C.B.UNIT		
		VEP4114C	TV DEMODULATOR	1	NV-V10EO
			P.C.B.UNIT		
		VEP4045A	FUSE P.C.B. UNIT	1	
		VEP4046A	POWER SUPPLY SUB P.C.B.	1	
			UNIT		
		VEP4047A	SWITCH P.C.B. UNIT	1	
		VEP4048A	SELECTOR SUB P.C.B. UNIT	1	
		VEP4049A	BACK UP P.C.B. UNIT	1	
		VEP4050A	SELECTOR P.C.B. UNIT	1	NV-V10E/EO
		VEP4060A	SELECTOR P.C.B. UNIT	1	NV-V10B
		VEP4051A	TIMER P.C.B. UNIT	1	NV-V10E/EO
		VEP4054A	TIMER P.C.B. UNIT	1	NV-V10B
		VEP4052A	TIMER DISPLAY P.C.B. UNIT	1	
		VEP4053A	IR RECEIVER P.C.B. UNIT	1	
F101		XBA2C20TRO	Fuse 2A/250V	1	⚠
F151		XBA2C315TRO	Fuse 3.15A/250V	1	⚠
		VMX0237	AC Cord Cover	1	
		ENPE719	ANTENNA BOOSTER		NV-V10E ⚠
		ENPE724	ANTENNA BOOSTER		NV-V10B ⚠
		ENPE721	ANTENNA BOOSTER		NV-V10EO ⚠

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
		VEP4114A/B/C	TV Demodulator P.C.B.Unit		
			Integrated Circuits		
IC101		μPC574J		1	
IC151		AN6564		1	
IC152		VCR0054		1	
IC701		BN5115	VIF IC	1	
IC751		AN5215	SIF IC	1	
			Transistors		
Q103		2SD794		1	
Q104		2SB788		1	
Q151		2SB751LB		1	
Q152		2SD637		1	
Q153		M21C		1	
Q154		N13T1		1	
Q155		2SB644		1	
Q156		2SD1051		1	
Q157		2SC2491		1	
Q158		2SA683		1	
Q159		2SB641		1	
Q160,161		2SC1384NC		2	
Q162		2SD637		1	
Q163		2SD1684		1	
Q164,165		2SD637		2	
Q166		2SD636		1	
Q167		2SC1684		1	
Q701		2SK55PE		1	
Q731		2SD636		1	
Q732		2SB641		1	
Q733		2SC945A		1	
Q751,752		2SD636		2	
			Diodes		
D101		S2VB10F1		1	
D102		RD6.2EB2	Zener	1	
D103,104		EK04		2	
D105		MA27WA		1	
D106		RD12EB2	Zener	1	
D107		MA165		1	
D108,109		EM1Z		2	
D110		RD5.1EB1	Zener	1	
D111		MA27WA		1	
D112		MA161C		1	
D116		MA161C		1	
D151		S4VB20F4		1	⚠
D152		MA165		1	
D153		GU3SYLF175		1	
D154-156		RF1Z		3	
D157		RD22EB1	Zener	1	
D158		RD6.2EB3	Zener	1	
D159,160		MA165		2	
D161		RD24EB4	Zener	1	
D162,163		MA165		2	
D164		RD15EB1	Zener	1	
D165		OA90G		1	
D166-172		MA165		7	
D173		RD15EB1	Zener	1	
D174		MA165		1	
D175,176		MA27WA		2	
D177,178		MA161C		2	
D701		MA165		1	NV-V10E/EO
D701		T3A205		1	NV-V10B

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
D702		MA165		1	NV-V10E/EO
			Resistors		
R101		ERQ12HKR39	1/2W 0.39	1	⚠
R102		ERDS1TJ681	1/2W 680	1	
R103		ERQ12HJ3R3	1/2W 3.3	1	⚠
R105		ERQ12HJ4R7	1/2W 4.7	1	
R106		ERDS1TJ182	1/2W 1.8K	1	
R107		ERD10TJ561	560	1	
R108		ERG1ANJ152	1W 1.5K	1	
R109		ERDS1TJ222	1/2W 2.2K	1	
R110		ERQ14AJ330	1/4W 33	1	⚠
R111		ERD10TJ561	560	1	
R112		ERD10TJ153	15K	1	
R113		ERQ14AJ220	1/4W 22	1	⚠
R114		ERD25TJ122	1/4W 1.2K	1	
R151		ERD10TJ152	1.5K	1	
R152		ERD10TJ221	220	1	
R153		ERG1ANJ122	1W 1.2K	1	
R154		ERD10TJ271	270	1	
R155		ERD10TJ153	15K	1	
R156		EVN61AA00B15	Variable 100K	1	
R157		ERD10TJ104	100K	1	
R158,159		ERD10TJ102	1K	2	
R160		ERD10TJ272	2.7K	1	
R161		ERD10TJ102	1K	1	
R162		ERD10TJ103	10K	1	
R163		ERDS1TJ102	1/2W 1K	1	
R164		ERD10TJ102	1K	1	
R165		ERD10TJ101	100	1	
R166		ERD10TJ104	100K	1	
R167		ERD10TJ152	1.5K	1	
R168		ERDS1TJ390	1/2W 39	1	
R169		ERD10TJ103	10K	1	
R170		ERQ14AJ101	1/4W 100	1	
R171,172		ERD10TJ222	2.2K	2	
R173		ERF2AJR18	2W 0.18	1	
R174		ERD10TJ121	120	1	
R175		ERD10TJ103	10K	1	
R176		ERD25TJ102	1/4W 1K	1	
R177		ERD10TJ392	3.9K	1	
R178		ERD10TJ222	2.2K	1	
R179		EVN61AA00B53	Variable 5K	1	
R180		ERD10TJ682	6.8K	1	
R181		ERDS1TJ331	1/2W 330	1	
R182		ERD10TJ684	680K	1	
R183		ERD10TJ333	33K	1	
R184		ERD10TJ223	22K	1	
R185		ERD10TJ332	3.3K	1	
R186		ERD10TJ473	47K	1	
R187,188		ERD10TJ103	10K	2	
R189		ERD10TJ104	100K	1	
R190		ERD10TJ153	15K	1	
R191		ERD10TJ102	1K	1	
R192		ERO10AKF1873	187K	1	
R193		ERO10AKG1052	10.5K	1	
R194		EVN61AA00B52	Variable 500	1	
R195		ERD10TJ561	560	1	
R196		ERTD2FHL153	Thermistor	1	
R197		ERD10TJ474	470K	1	
R198		ERD10TJ684	680K	1	
R199		EVN61AA00B33	Variable 3K	1	
R201		ERD10TJ272	2.7K	1	
R202		ERTD2FHL332	Thermistor	1	
R203		ERD10TJ123	12K	1	
R204,205		ERD10TJ223	22K	2	
R206,207		ERD10TJ332	3.3K	2	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R208		ERD10TJ473	47K	1	
R210		ERD10TJ390	39	1	
R702		ERD10TJ271	270	1	NV-V10E/B
R702		ERD10TJ560	56	1	NV-V10EO
R703		ERD10TJ152	1.5K	1	NV-V10E/EO
R703		ERD10TJ222	2.2K	1	NV-V10B
R705		ERD10TJ124	120K	1	
R706		ERD10TJ104	100K	1	
R707		ERD10TJ274	270K	1	
R708		ERD10TJ183	18K	1	
R709		ERD10TJ392	3.9K	1	
R710		ERD10TJ102	1K	1	
R711		ERD10TJ822	8.2K	1	NV-V10E/EO
R712		EVN61AA00B23	Variable 2K	1	NV-V10E/EO
R713		ERD10TJ392	3.9K	1	NV-V10E/EO
R714		ERD10TJ8222	8.2K	1	
R715		EVN61AA00B23	Variable 2K	1	
R716		ERD10TJ332	3.3K	1	NV-V10E
R716		ERD10TJ272	2.7K	1	NV-V10B
R716		ERD10TJ392	3.9K	1	NV-V10EO
R717		ERD10TJ271	270	1	
R718		ERD10TJ561	560	1	NV-V10E/EO
R718		ERD10TJ681	680	1	NV-V10B
R719		ERD10TJ102	1K	1	
R720		ERD10TJ561	560	1	
R730		ERD10TJ183	18K	1	
R731		ERD10TJ562	5.6K	1	
R732		ERD10TJ470	47	1	
R733		EVN61AA00B13	Variable 1K	1	NV-V10E
R733		EVN61AA00B23	Variable 2K	1	NV-V10B
R733		EVN61AA00B52	Variable 500	1	NV-V10EO
R734		ERO10TKG3301	3.3K	1	
R735		ERD10TJ680	68	1	
R736		ERO10TKG2701	2.7K	1	
R737		ERD10TJ470	47	1	
R738		ERD10TJ181	180	1	
R739		ERD10TJ123	12K	1	
R751		ERQ14AJ220	1/4W 22	1	⚠
R752		ERD10TJ152	1.5K	1	
R753		EVN61AA00B53	Variable 5K	1	
R754		ERD10TJ563	56K	1	
R755		ERD10TJ222	2.2K	1	
R756		ERD10TJ103	10K	1	
			Capacitors		
C101-103		ECKF1H103ZF	Ceramic 50V 0.01	3	
C104		ECEA1VS222	Electrolytic 35V 2200	1	
C105		ECEA1AG101	Electrolytic 10V 100	1	
C106		ECEA1CS222	Electrolytic 16V 2200	1	
C107		ECEA1CS101	Electrolytic 16V 100	1	
C108		ECEA1JS331	Electrolytic 63V 330	1	
C109,110		ECKF2H102KB	Ceramic 100V 0.001	2	
C111		ECEA2AS101	Electrolytic 100V 100	1	
C112		ECKF1H103ZF	Ceramic 50V 0.01	1	
C113		ECEA1CS221	Electrolytic 16V 220	1	
C114		ECEA1CS470	Electrolytic 16V 47	1	
C115		ECKF1H103ZF	Ceramic 50V 0.01	1	
C117		ECKF1H223ZF	Ceramic 50V 0.022	1	
C118		ECKF1H103ZF	Ceramic 50V 0.01	1	
C151-153		ECKF1H103ZF	Ceramic 50V 0.01	3	
C154		ECET50R222	Electrolytic 50V 2200	1	
C155		ECEA10T330	Electrolytic 10V 330	1	
C156		ECEA50Z10	Electrolytic 50V 10	1	
C157		ECKF1H271KB	Ceramic 50V 270P	1	
C158		ECQV05104JZ	Mylar 50V 0.1	1	
C159		ECKF1H472KB	Ceramic 50V 0.0047	1	
C160		ECQM1H563KV	Mylar 50V 0.056	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
C161		ECEA10T220	Electrolytic 10V 220	1	
C162		ECEA50Z10	Electrolytic 50V 10	1	
C163		ECKF2H681KB	Ceramic 100V 680P	1	
C164		ECQP1393JZ	Mylar 100V 0.039	1	
C165		ECKF1H473ZF	Ceramic 50V 0.047	1	
C166		ECEA1ES222	Electrolytic 25V 2200	1	
C167		ECQV05224JZ	Mylar 50V 0.22	1	
C168		ECEA0JS470	Electrolytic 6.3V 47	1	
C169		ECQV05224JZ	Mylar 50V 0.22	1	
C170		ECEA1ES471	Electrolytic 25V 470	1	
C171		ECEA1HG4R7	Electrolytic 50V 4.7	1	
C172		ECQM1H393KZ	Mylar 50V 0.039	1	
C173		ECEA1EN4R7	Electrolytic 25V 4.7	1	
C174		ECEA1ES220	Electrolytic 25V 22	1	
C175		ECEA1HS010	Electrolytic 50V 1	1	
C176		ECEA1CS470	Electrolytic 16V 47	1	
C177		ECEA16V102	Electrolytic 16V 1000	1	
C178		ECEA1CS470	Electrolytic 16V 47	1	
C179,180		ECKF2H222KB	Ceramic 100V0.0022	2	
C182		ECQV05823JZ	Mylar 50V 0.082	1	
C701		ECEA16Z220	Electrolytic 16V 220	1	NV-V10E/EO
C702		ECEA16Z10	Electrolytic 16V 10	1	
C703		ECKF1H103ZF	Ceramic 50V 0.01	1	NV-V10E/EO
C704		ECEA1CS330	Electrolytic 16V 33	1	NV-V10E/EO
C705		ECQV05224JZ	Mylar 50V 0.22	1	
C706		ECEA16Z220	Electrolytic 16V 220	1	
C707		ECCF1H560JC	Ceramic 50V 56P	1	NV-V10E
C707		ECCF1H390JC	Ceramic 50V 39P	1	NV-V10B
C708		ECCF1H080DC	Ceramic 50V 8P	1	
C709		ECKF1H103ZF	Ceramic 50V 0.01	1	
C710		ECEA50Z2R2	Electrolytic 50V 2.2	1	
C715		ECKF1H103ZF	Ceramic 50V 0.01	1	
C716		ECQV05224JZ	Mylar 50V 0.22	1	
C717–719		ECKF1H103ZF	Ceramic 50V 0.01	3	
C720		ECEA50Z1	Electrolytic 50V 1	1	
C721		ECKF1H103ZF	Ceramic 50V 0.01	1	
C722		ECCF1H030CC	Ceramic 50V 3P	1	
C723		ECCF1H121JL	Ceramic 50V 120P	1	
C724		ECCF1H220JC	Ceramic 50V 22P	1	
C725		ECCF1H020CC	Ceramic 50V 2P	1	
C726		ECKF1H103ZF	Ceramic 50V 0.01	1	
C727		ECCF1H150JC	Ceramic 50V 15P	1	NV-V10E/EO
C727		ECCF1H120JC	Ceramic 50V 12P	1	NV-V10B
C728		ECCF1H560JR	Ceramic 50V 56P	1	
C729		ECCF1H680JP	Ceramic 50V 68P	1	
C730		ECEA1EN4R7	Electrolytic 25V 4.7	1	
C731		ECCF1H100DC	Ceramic 50V 10P	1	NV-V10E/EO
C731		ECCF1H090CC	Ceramic 50V 9P	1	NV-V10B
C732		ECKF1H473ZF	Ceramic 50V 0.047	1	
C733		ECEA1CS101	Electrolytic 16V 100	1	
C734		ECKF1H103ZF	Ceramic 50V 0.01	1	
C735		ECCF1H330JC	Ceramic 50V 33P	1	
C751		ECCF1H050CC	Ceramic 50V 5P	1	
C752		ECQM1H473KV	Mylar 50V 0.047	1	
C753		ECEA1CS101	Electrolytic 16V 100	1	
C754		ECCF1H120JC	Ceramic 50V 12P	1	
C755		ECCF1H390JP	Ceramic 50V 39P	1	
C756		ECQM1H393JZ	Mylar 50V 0.039	1	
C757		ECEA1CS100	Electrolytic 16V 10	1	
			Complex Components		
CR701		EXRP103P471		1	
CR702		EXPR220K272		1	
CR751		EXPR820K333		1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Coils		
L151		VTQ0017		1	
L152		TLT047K999G		1	
L153		TLP408C		1	
L154,155		VLP0006		2	
L156		TLP408C		1	
L157		TSC909		1	
L158		VTQ0017		1	
L159		TLP408C		1	
L701		TLQR56N205C		1	NV-V10E/B
L702		TLT470K999G		1	
L703		TLQ150K205C		1	
L704		TLQ470K205C		1	
L731		TLT680J999G		1	
L732		TLT680J999G		1	
			Filters		
X701		EFCS5R5MW3		1	NV-V10E/E0
X701		EFCS6R0MW3		1	NV-V10B
X751		EFCS5R5MS4E		1	NV-V10E/E0
X751		EFCS6R0MS3		1	NV-V10B
			Connectors		
P101		VJP1146	10P	1	
P102		VJP1141	2P	1	
P103		VJP1231	4P	1	
P104		VJP1235	8P	1	
P105		VJP1145	8P	1	
P109		VJP1233	6P	1	
P6701,6702		VJP1188	4P	2	
			Transformers		
T151		ETS30K9A		1	
T701		EIV7E016H		1	
T703		EULHLB311		1	NV-V10E/E0
T703		EULHLB353		1	NV-V10B
T704		EIM7A511		1	
T705,706		EIV7E016F		2	
T751		EIS7E006A		1	
T752		EIS7E006B		1	
			Miscellaneous		
		VSC0863	Heat Sink	1	
		XTV3+6B	Screw	1	
		VMA6114	Mounting Angle	1	
			for Temp. Fuse		
		VSC0691	Heat Sink	1	
F151		TJC6320	Fuse Holder	2	⚠
F152		VSF0024	Temp. Fuse	1	⚠
		XNG3BS		1	
		XSN3+12S		1	
		XWA3		1	
		XWG3		1	
		TNV77759F2	Tuner	1	NV-V10E
		TNV87521F2	Tuner	1	NV-V10B
		TNV57756F2	Tuner	1	NV-V10EO
		VSC0694	VIF Shield Case	1	
		VSC0827	VIF Shield Case	1	

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
	VSC0828	VIF Shield Case	1	
	XRY26X40BD	Eyelet	4	
	VEP4045A	Fuse P.C.B. Unit		
		Miscellaneous		
	TJC6320	Fuse Holder	2	
	VEP4046A	Power Supply Sub P.C.		
		P.C.B. Unit		
		Miscellaneous		
	TMK6436	Mica Sheet	2	
Q101	2SD794	Transistor	1	
Q105	2SD794	Transistor	1	
	VSC0690	Heat Sink	1	
	XYN3+F8	Screw	2	
	VEP4047A	Switch P.C.B. Unit		
		Transistors		
Q6771	2SB726		1	
Q6772	2SC1473		1	
Q6773	2SD637		1	
Q6774	2SD636		1	
Q6791	2SA564		1	
Q6792	2SC1684		1	
Q6793	2SB641		1	
		Diodes		
D6771	MA522VT		1	
D6772	MA165		1	
D6791	LN28WPVT	LED	1	
D6792,6793	MA165		2	
D6794	OA90G		1	
		Resistors		
R6771-6773	ERD10TJ103	10K	3	
R6774	ERD10TJ473	47K	1	
R6775	ERD10TJ103	10K	1	
R6776	ERD25TJ272	1/4W 2.7K	1	
R6778	EVN60AA00B53	Variable 5K	1	
R6779	ERD10TJ103	10K	1	
R6780	ERD10TJ332	3.3K	1	
R6781	ERD10TJ223	22K	1	
R6791	ERD10TJ474	470K	1	

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
R6792	EVN60AA00B55	Variable 500K	1	
R6793	ERD10TJ154	150K	1	
R6794	ERD10TJ564	560K	1	
R6795,6796	ERD10TJ473	47K	2	
R6797	ERD10TJ333	33K	1	
R6798	ERD10TJ682	6.8K	1	
R6799	ERD10TJ181	180	1	
		Capacitors		
C6763	ECEA16Z10	Electrolytic 16V 10	1	
C6764	ECKF1H223ZF	Ceramic 50V 0.022	1	
C6765	ECKF1H103ZF	Ceramic 50V 0.01	1	
C6771	ECEA1HS010	Electrolytic 50V 1	1	
		Switch		
SW6791	EVQQH504B		1	
		Connectors		
P6703	VJP1146	10P	1	
P6704	VJP1229	2P	1	
P6705	VJP1233	6P	1	
	VEP4048A	Selector Sub P.C.B. Unit		
		Integrated Circuits		
IC6801	AN5421	Sync Sep. IC	1	
IC6802	AN6913	Comparator IC	1	
IC6803	µPD4066BC	Switch IC	1	
IC7301	BA7004	Test Signal IC	1	
		Transistors		
Q6801	2SD636		1	
Q6803	2SD636		1	
Q7301	2SD636		1	
		Resistors		
R6801	ERD10TJ101	100	1	
R6802	ERD10TJ471	470	1	
R6803	ERD10TJ562	5.6K	1	
R6804	ERD10TJ472	4.7K	1	
R6805	ERD10TJ151	150	1	
R6806	ERD10TJ104	100K	1	
R6811	EVN61AA00B23	Variable 2K	1	
R6812	ERD10TJ562	5.6K	1	
R6813	ERD10TJ393	39K	1	
R6814	ERD10TJ222	2.2K	1	
R6815	ERD10TJ822	8.2K	1	
R6816	ERD10TJ332	3.3K	1	
R6817	ERD10TJ393	39K	1	
R6821-6823	ERD10TJ473	47K	3	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R6824,6825		ERD10TJ333	33K	2	
R6826		ERD10TJ473	47K	1	
R6827		ERD10TJ103	10K	1	
R6828		ERD10TJ682	6.8K	1	
R6829		ERD10TJ103	10K	1	
R7301		ERD10TJ101	100	1	
R7302		ERD10TJ330	33	1	
			Capacitors		
C6801		ECEA1CS330	Electrolytic 16V 33	1	
C6802		ECQM1H392KZ	Mylar 50V 0.0039	1	
C6803		ECQM1H103KZ	Mylar 50V 0.01	1	
C6806		ECEA1HS010	Electrolytic 50V 1	1	
C6807		ECQM1H103KZ	Mylar 50V 0.01	1	
C6808		ECEA50Z1	Electrolytic 50V 1	1	
C6809		ECQM1H272JZ	Mylar 50V 0.0027	1	
C6810		ECQP1562JZ	Mylar 100V0.0056	1	
C6812		ECQV05104KB	Mylar 50V 0.1	1	
C6813		ECEA1CS101	Electrolytic 16V 100	1	
C6815		ECEA1CS101	Electrolytic 16V 100	1	
C7301,7302		ECKW1H332KB	Ceramic 50V 0.0033	2	
			Crystal		
X7301		VSX0099		1	
		VEP4049A	Back up P.C.B. Unit		
			Capacitors		
C6795-6797		EECW2R3A3R3	Gold 2.3V 3.3	3	
			Miscellaneous		
		VKM0124	Battery Case	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
		VEP4050A	Selector P.C.B. Unit		
		VEP4060A			
			Integrated Circuits		
IC7051		μPD4049UBC	Inverter IC	1	
			Transistors		
Q7001		2SC1685		1	
Q7002		2SA564A		1	
Q7003,7004		2SC1685		2	
Q7005		2SA564		1	
Q7051		2SD636		1	NV-V10E/EO
Q7052		2SD637		1	NV-V10E/EO
Q7053,7054		2SD636		2	NV-V10E/EO
Q7055,7056		2SB643		2	NV-V10E/EO
Q7057,7058		2SB641		2	
Q7059		2SD636		1	NV-V10B
Q7060		2SB641		1	NV-V10B
			Diodes		
D6852		MA165		1	
D6854		MA165		1	
D7051,7052		MA165		2	NV-V10E/EO
D7053		LN29RP	LED	1	
D7054-7056		LN29RP	LED	1	NV-V10E/EO
D7057		LN29RP	LED	1	
D7058		MA150		1	NV-V10B
D7059		MA161C		1	
			Resistors		
R6851		ERD10TJ104	100K	1	
R6857		ERD10TJ103	10K	1	
R6859		ERD10TJ124	120K	1	
R6860		ERD10TJ221	220	1	
R7001		ERD10TJ223	22K	1	
R7002,7003		ERD10TJ473	47K	2	
R7004,7005		ERD10TJ104	100K	2	
R7006		ERD10TJ223	22K	1	
R7007,7008		ERD10TJ104	100K	2	
R7009		ERD10TJ103	10K	1	
R7010		ERD10TJ472	4.7K	1	
R7011,7012		ERD10TJ333	33K	2	
R7051		ERD25TJ102	1/4W 1K	1	NV-V10E/EO
R7052		ERD10TJ103	10K	1	NV-V10E/EO
R7053,7054		ERD25TJ102	1/4W 1K	2	NV-V10E/EO
R7057		ERD10TJ331	330	1	
R7060		ERD10TJ331	330	1	
R7061		ERD10TJ124	120K	1	NV-V10B
R7062		ERD10TJ104	100K	1	NV-V10B
R7063,7064		ERD10TJ332	3.3K	2	NV-V10B
R7074		ERD10TJ224	220K	1	NV-V10E/EO
R7075		ERD10TJ104	100K	1	NV-V10E/EO
			Capacitors		
C6852		ECQM1H392KZ	Mylar 50V 0.0039	1	
C7001		ECQV05014JB	Mylar 50V 0.1	1	
C7002		ECQV05223JB	Mylar 50V 0.022	1	
C7003		ECQV05473JB	Mylar 50V 0.047	1	
C7004		ECQV05223JB	Mylar 50V 0.022	1	
C7005		ECQV05473JZ	Mylar 50V 0.047	1	
C7051		ECQV05224JZ	Mylar 50V 0.22	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
C7052		ECEA1CS100	Electrolytic 16V 10	1	
C7053		ECKF1H103ZF	Ceramic 50V 0.01	1	NV-V10B
			Complex Components		
CR7051		EXBP84104K		1	
CR7052		EXBS84562K		1	NV-V10E/EO
CR7053		EXBS84103K		1	NV-V10E/EO
CR7054		EXBS85103K		1	NV-V10E/EO
CR7055		EXBS84332K		1	
			Switches		
SW7051-7055		EVQQS405K		5	
SW7301		VES0198		1	
			Connectors		
P7001		VJP1237	10P	1	
P7002		VJP1142	3P	1	
P7003		VJP1145	8P	1	
P7004		VJP1144	6P	1	
P7005		VJP1239	12P	1	
P7006		VJP1143	5P	1	
P7007		VJP1188	4P	1	
		VEP4051A	Timer P.C.B. Unit		
		VEP4054A			
			Integrated Circuits		
IC6703		MN1455BVC	Timer IC	1	
IC6704		MN1512VTB		1	
IC6705		MN1219	Memory IC	1	
			Transistors		
Q6721,6722		2SD636		2	
Q6723		2SB641		1	(R)
Q6724-6731		2SD636		8	
			Diodes		
D6721-6723		MA165		3	
D6724		RD27EB3	Zener	1	
D6725		MA27WA		1	
D6726,6727		MA165		2	
D6728		MA165		1	NV-V10B
D6729		MA165		1	NV-V10B
D6730-6734		MA165		5	
D6735		RD7.5EB1	Zener	1	
D6736,6737		MA165		1	
			Resistors		
R6720		ERD10TJ122	1.2K	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R6721		ERC14GJ126	1/4W 12M	1	
R6722		ERD10TJ104	100K	1	
R6723,6724		ERD10TJ471	470	2	
R6725,6726		ERD10TJ223	22K	2	
R6727		ERD10TJ104	100K	1	
R6728		ERD10TJ473	47K	1	
R6732		ERD10TJ104	100K	1	
R6733		ERD10TJ471	470	1	
R6735		ERD10TJ562	5.6K	1	
R6736		ERD10TJ272	2.7K	1	
R6738		ERD10TJ562	5.6K	1	
R6740-6743		ERD10TJ471	470	4	
R6744		ERD10TJ562	5.6K	1	
R6745		ERD10TJ472	4.7K	1	
R6746		ERD10TJ471	470	1	
R6749		ERD10TJ562	5.6K	1	
R6750		ERD10TJ222	2.2K	1	
R6751		ERD10TJ472	4.7K	1	
R6752		ERD10TJ122	1.2K	1	
R6753		ERD10TJ153	15K	1	NV-V10E/EO
R6753		ERD10TJ822	8.2K	1	NV-V10B
R6754		ERD10TJ333	33K	1	
R6755		ERD10TJ103	10K	1	
R6756		ERD10TJ392	3.9K	1	
R6757		ERD10TJ473	47K	1	
R6759		ERD10TJ104	100K	1	
R6761		ERD10TJ103	10K	1	
R6762,6763		ERD10TJ104	100K	2	
R6764		ERD10TJ562	5.6K	1	
R6766		ERD10TJ222	2.2K	1	
R6767		ERD10TJ123	12K	1	
R6768		ERD10TJ222	2.2K	1	
			Capacitors		
C6721		ECCF1H080DC	Ceramic 50V 8P	1	
C6722		ECV1ZW20X32	Trimmer 20P	1	
C6723		ECCF1H220JC	Ceramic 50V 22P	1	
C6724		ECCF1H330JC	Ceramic 50V 33P	1	
C6725,6726		ECKF1H223ZF	Ceramic 50V 0.022	2	
C6727		ECEA1AS101	Electrolytic 10V 100	1	
C6731		ECEA50Z4R7	Electrolytic 50V 4.7	1	
C6732		ECEA1AS101	Electrolytic 10V 100	1	
C6733		ECKF1H103ZF	Ceramic 50V 0.01	1	
C6734		ECKF1H223ZF	Ceramic 50V 0.022	1	
C6735		ECCF1H101JC	Ceramic 50V 100P	1	
C6736		ECCF1H330JC	Ceramic 50V 33P	1	
C6738		ECKF1H103ZF	Ceramic 50V 0.01	1	
C6739		ECKF1H102PF	Ceramic 50V 0.001	1	
			Complex Components		
CR6703		EXBS86104K		1	NV-V10E/EO
CR6703		EXBH86297J		1	NV-V10B
CR6704		EXBP84473K		1	
CR6705		EXRP101K392S		1	
CR6706		EXBS84103K		1	
			Crystals		
X6701		VSX0071A		1	
X6702		VSX0094		1	
X6703		VSX0082		1	

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
	VEP4052A	Timer Display P.C.B. Unit		
		Integrated Circuits		
IC6701,6702	AN6873N	Driver IC	2	
		Diodes		
D6701	LN21RCPHL	LED	1	
D6703	LN21RCPHL	LED	1	
D6705	RD24EB3	Zener	1	
D6706	RD10EB2	Zener	1	
D6707	RD6.8EB2	Zener	1	
D6708-6712	MA165		5	
D6714	MA165		1	
		Resistors		
R6701	ERD25TJ122	1/4W 1.2K	1	
R6705	ERD10TJ104	100K	1	
R6706,6707	ERD10TJ100	10	2	
		Switches		
SW6701	VES0208		1	
SW6702-6710	EVQQS405K		9	
SW6711	ESB641		1	
SW6712	VES0198		1	
SW6713,6714	EVQQS405K		2	
		Miscellaneous		
DP6701	VSL0010	Indicator	1	
DP6702	VSL0014	Indicator	1	
	VCQ0330	Indicator Tube Holder	4	

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
	VEP4053A	IR RECEIVER P.C.B. Unit		
		Integrated Circuit		
IC6501	μPC1373H		1	
		Diode		
D6501	PN313	Photo	1	
		Resistors		
R6501	ERD10TJ102	1K	1	
R6502	ERD10TJ120	12	1	
R6503	ERD10TJ154	150K	1	
		Capacitors		
C6501	ECEA1CK100	Electrolytic 16V 10	1	
C6502	ECEA1EKR47	Electrolytic 25V 0.47	1	
C6503	ECEA1CK100	Electrolytic 16V 10	1	
C6504	ECQP1472JZ	Mylar 100V0.0047	1	
C6505	ECQM1H183KZ	Mylar 50V 0.018	1	
C6506	ECEA1CK470	Electrolytic 16V 47	1	
		Transformer		
T6501	ELM7Q206A	Tuning	1	
		Miscellaneous		
	VKW0147	Filter for Remote Control	1	
	VSC0800	Shield Case	1	
	VSC0801	Shield Case	1	
	VSC0806	Shield Case	1	

Panasonic
MATSUSHITA ELECTRIC

Printed in Japan

ORDER NO. VRD-8206-099

Service Manual

AC Adaptor

Vol. 6

NV-B11-E -B

SPECIFICATIONS

Power Source:	220, 240 V AC 50/60 Hz
Power Consumption:	50 W
Output:	12 V DC. 1.6 A
	15 V DC for battery charge
Weight:	2.6 kg
Dimensions:	146(W) × 92.5(H) × 240(D) mm

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

CAUTION: FOR USE WITH VIDEO TAPE RECORDER, MODEL NV-100.
WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

This unit is an AC adaptor for the NV-100 Portable Video Recorder: for a power supply to the recorder and the colour video camera, and for recharging of the battery pack.

CAUTION: **This unit is for use with video tape recorder, model NV-100.**

WARNING: **To prevent fire or shock hazard, do not expose this equipment to rain or moisture.**

FEATURES

1. **TV/VTR Switch**
   When the VTR and the TV set are connected to this unit, TV/VTR switch enables you to watch TV normally or to view playback of video recording.
2. **Simultaneous power supply**
   This unit supplies power to the colour camera through the recorder NV-100.
3. **Voltage selector**
   This unit can also be used in other countries where voltages are different (220, 240 V AC: NV-B11) by setting the voltage selector to the local voltage.
4. **Battery pack can be recharged in 90 minutes. Simultaneous charging.**
   A battery pack in the battery compartment on the unit can be charged while at the same charging the battery pack in the recorder.

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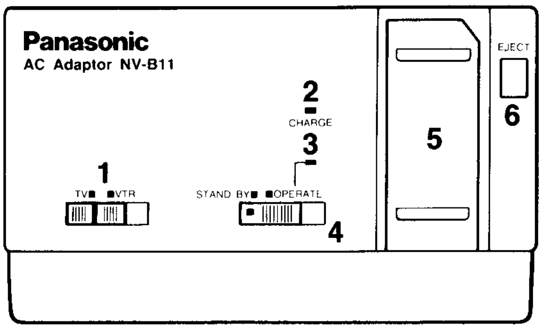
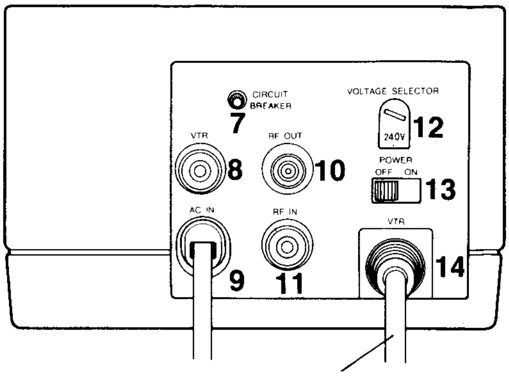
FRONT



REAR



ADAPTOR CABLE to ADAPTER TERMINAL

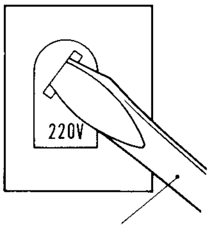
FUNCTION OF CONTROLS

FRONT

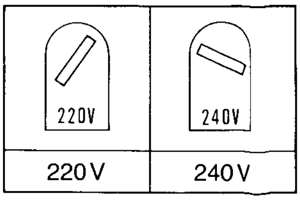
1. **TV/VTR switch**
   VTR—To watch playback of video recording
   TV— To watch TV normally
2. **Charging Indicator Lamp**
   Lights up during charging of the battery pack, and extinguishes when charging is complete.
   Please refer to page 6.
3. **Pilot Lamp**
   When the Operation Switch is turned to "OPERATE" position, this lamp lights up.
4. **Operation Switch**
   Set to "OPERATE" to turn the unit on.
5. **Battery Compartment**
   When the battery pack is to be charged, insert it to this compartment.
6. **Battery Eject Button**
   When the Eject Button pushed, the battery pack is ejected.

REAR

7. **Circuit Breaker Button**
   The ADAPTOR Cable terminal will short-circuit if the terminal is mistakenly placed in contact with any conductive object other than the ADAPTOR terminal while the power cord is plugged in. The protective circuit will operate to break the circuit at this time, button will stick out and the Pilot Lamp will go off. To restore the unit to normal operation, connect the ADAPTOR Cable to the ADAPTOR terminal, wait one or two minutes, then depress this button.
8. **VTR Terminal**
   Connect it to RF OUT of the recorder.
9. **Power Cord**
   For connection to an ordinary power source.
10. **RF OUT Terminal**
    Connect it to TV.
11. **RF IN Terminal**
    Connect it to an aerial.
12. **Voltage Selector**
    Ensure that the selector is set at the same indication as the local mains voltage before plugging in the unit.



220V or 240V
Screwdriver

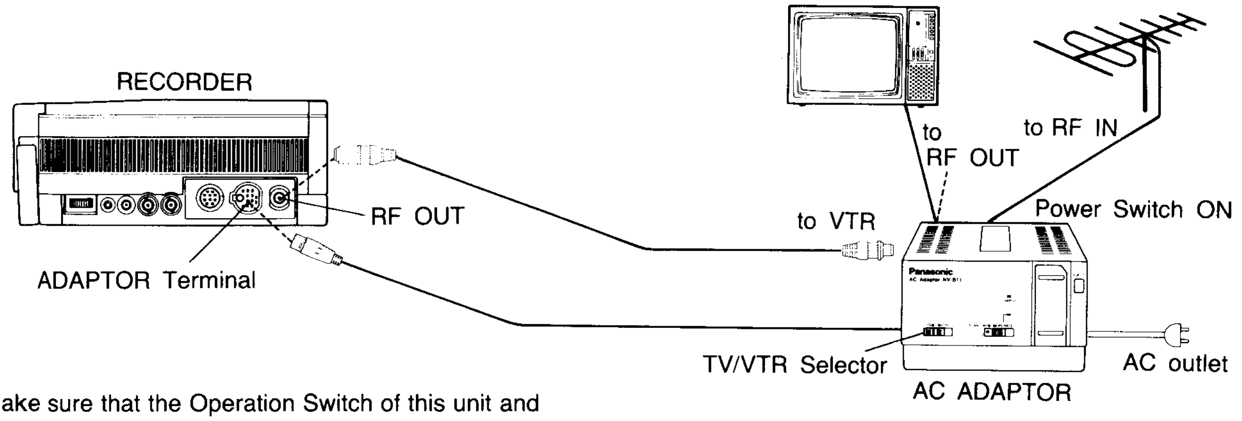


Note:
Power Switch must be off and Power Cord disconnected from mains prior to changing the voltage selector.

13. **POWER OFF/ON Switch**
    Switching on applies power to the unit. To switch off this unit completely, set to "OFF".
14. **ADAPTOR Cable**
    Connect it to ADAPTOR Terminal of the recorder.

OPERATION

■ To use as a power source

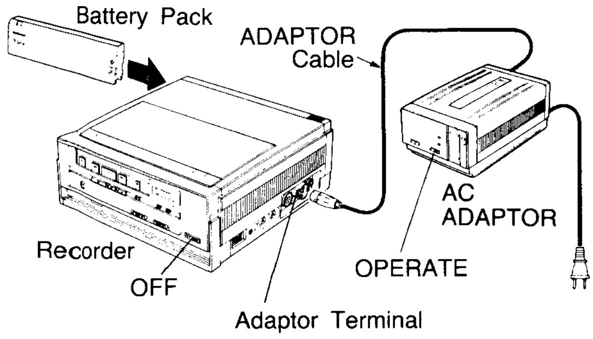

RECORDER
RF OUT
ADAPTOR Terminal
to VTR
to RF OUT
to RF IN
Power Switch ON
TV/VTR Selector
AC outlet
AC ADAPTOR

- Make sure that the Operation Switch of this unit and of the recorder are off, and that the Voltage Selector is adjusted to your local voltage.

1. Connect the DIN RF Cable to RF OUT of the recorder and VTR of the unit.
2. Connect the ADAPTOR Cable to ADAPTOR Terminal of the recorder.
3. Plug in the unit.
4. Switch Power OFF/ON to "ON".
5. Set the Operation Switch to "OPERATE". The Pilot Lamp will light up to indicate that the preparations for power supply are completed.
6. Set the TV/VTR Switch to "VTR" to view playback of video recording. Set the TV/VTR switch to "TV" to watch TV normally.
   - When the Operation Switch is set to "STANDBY", "TV" mode is automatically selected.

BATTERY CHARGING

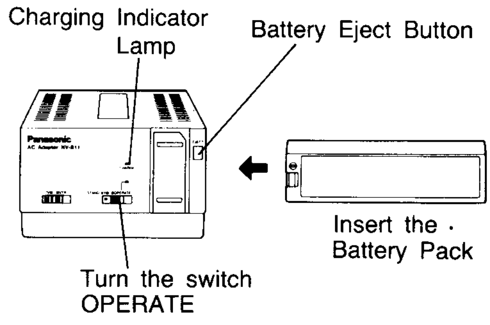
1. To charge the battery pack of the recorder.


Battery Pack
ADAPTOR Cable
AC ADAPTOR
Recorder
OFF
OPERATE
Adaptor Terminal

1. Insert the battery pack into the recorder and connect the ADAPTOR Cable on the unit to ADAPTOR Terminal.
2. Turn the unit on.
3. The Charging Indicator Lamp will light up and charging of the battery pack in the recorder will start.

- It is recommended to continue recharging for 3 or 4 hours after the lamp goes off (1.5 hours) to prolong the life of the battery pack.
- If the recorder is turned on during recharging, recharging will stop and the Charging Indicator Lamp will go off.

2. Charging the battery pack in the battery compartment.


Charging Indicator Lamp
Battery Eject Button
Insert the Battery Pack
Turn the switch OPERATE

1. Insert the battery pack to the battery compartment.
2. Turn the unit on, and charging will start.

The recharging time for two battery packs (one in the recorder and one being recharged in the AC ADAPTOR at the same time) is about twice the time required for one battery pack.

DISASSEMBLY METHOD

1. unscrew the 2 screws (A) and remove the handle. Then lift the top case and remove it.

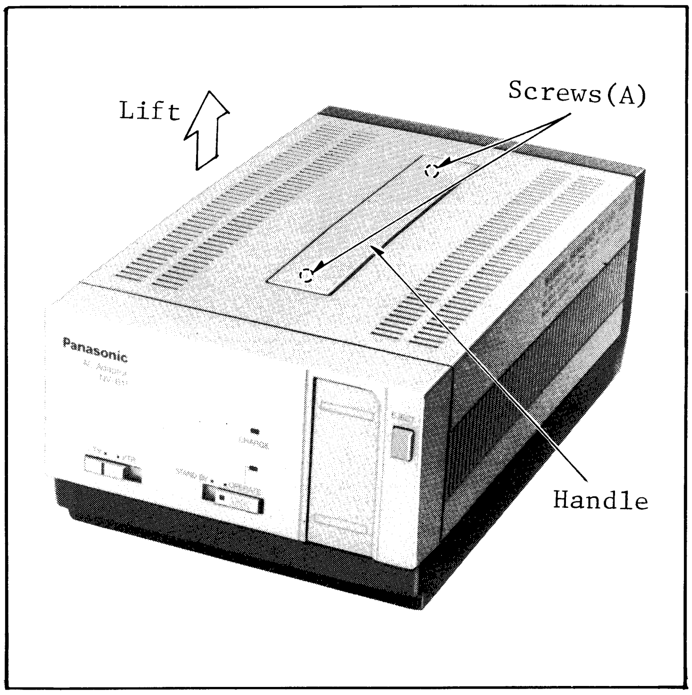

Lift
Screws(A)
Panasonic
Handle

Fig. 1

2. Unscrew the 4 screws (B) and remove the bottom case.

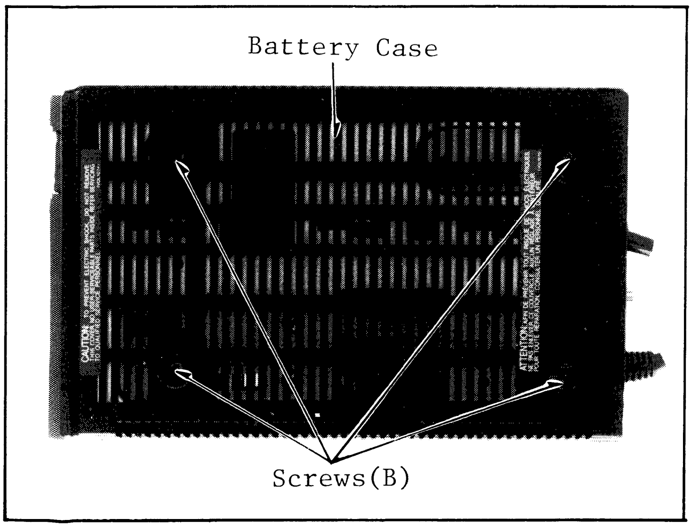

Battery Case
Screws(B)

Fig. 2

3. Unscrew the scerw (C) and remove the battery case.

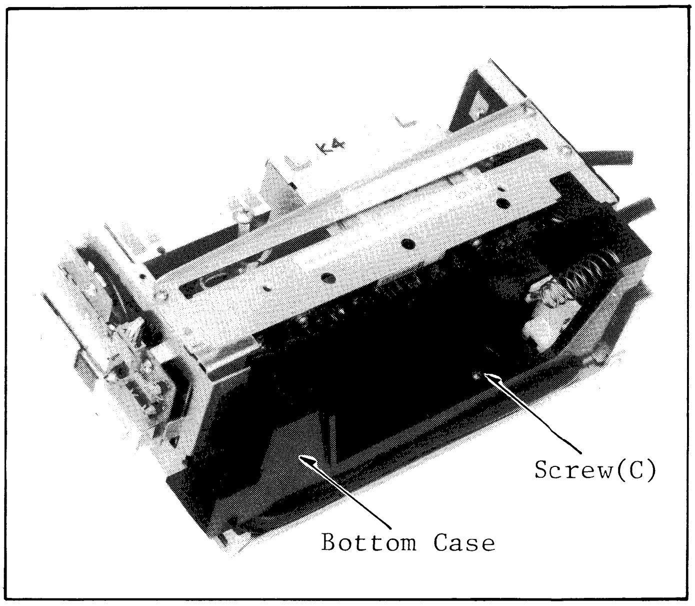

Screw(C)
Bottom Case

Fig. 3

ELECTRICAL ADJUSTMENT PROCEDURES

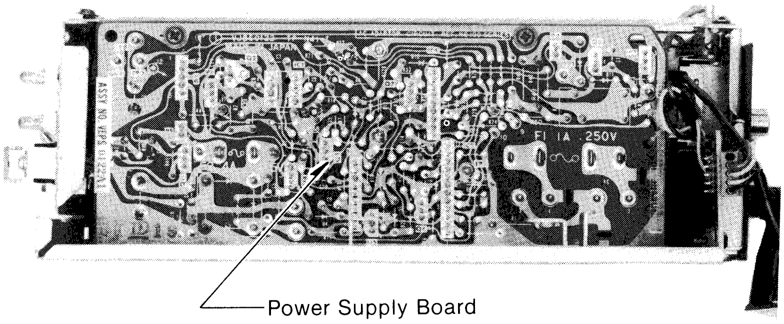

F1 1A 250V
Power Supply Board

Fig. 4

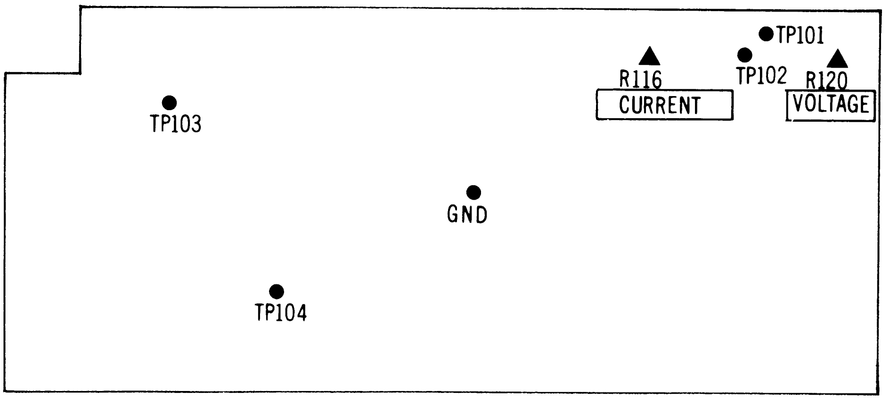

TP101
R116
CURRENT
TP102
R120
VOLTAGE
TP103
GND
TP104

Fig. 5

This section provided complete electrical adjustment procedure which may be required for electronic circuits of MULTI-VOLTAGE AC ADAPTOR UNIT.

Test Equipment

To perform the electrical adjustment completely, the following equipments are required.

1. VTVM (Vacuum Tube Volt Meter) or DVM (Digital Volt Meter)
   Voltage Range: 0.001 - 50V
2. Dual-Trace Oscilloscope
   Voltage Range: 0.005 - 50V/div.
   Frequency Range: DC - 10MHz
   Probes: 10:1 or 1:1
3. DC Currentmeter
   Current Range: 0 - 10A
4. Plastic Tip Driver

1. Charge Current (1.6A) Adjustment

Test Point: D120
Adjustment: R116

1. Do not connect the Multi-connector to the deck.
2. Connect the DC Currentmeter and battery as shown below.

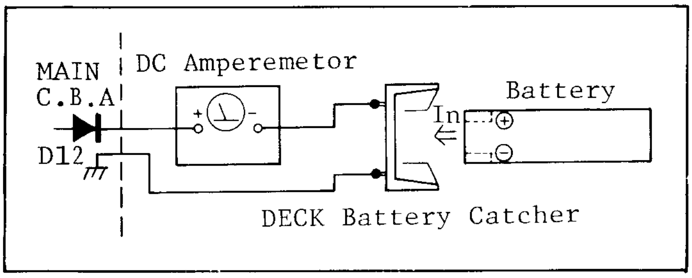


Fig. 6

The output voltage of the battery should be about 10.6V DC.
It can be made as following process.

1) Discharge the battery by using the VCR which has already had performed the Under Cut Adjustment. Refer to NV-8420 Service Manual Vol. 2 (Electrical Adjustment Procedures).
2) The VCR automatically turn into the STOP mode because the Under Cut function works.
3) At this time the output voltage of the battery is approx. 10.6V DC.

3. Connect the scope to TP102 on the Main P.C. Board.
4. Adjust Charge Current Adjustment (R116) so that the current is 1.6A 0.02A.
5. Confirm that the voltage at TP102 is High during the adjustment.

2. Width of Hysteresis Loop Adjustment

Test Point: TP102
Adjustment: R120

1. Do not connect Multi-connector to the deck.
2. Connect a 50kΩ variable resistor (1/4W) to parallel with R106 on the Main P.C. Board as shown below.

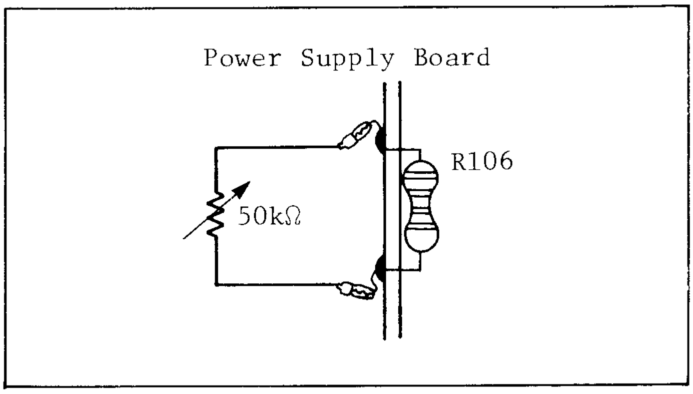
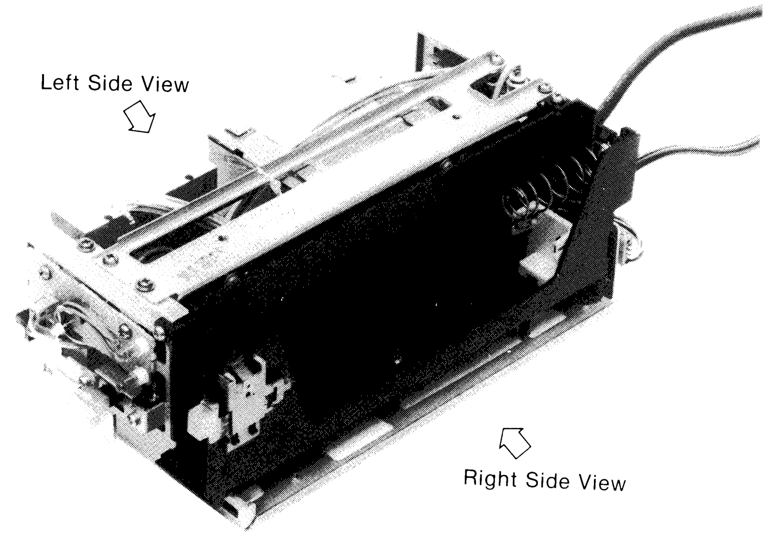


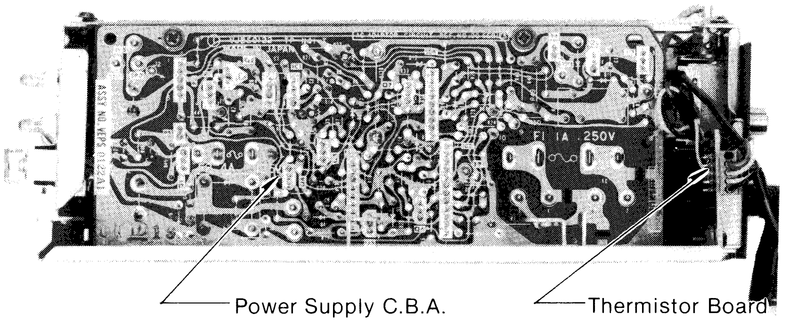
Fig. 7

3. Short both end of R119 on the Main P.C. Board.
4. Turn the Power on switch and adjust a 50kΩ variable resistor so that the voltage of Battery Catcher is +14.10V.
5. Connect the scope to TP102 on the Main P.C. Board and confirm that the voltage is "High" (+15.0V ± 1V).
6. Adjust Charge Volt Adjustment (R120) just to the point that the DC voltage is changed "Low" to "High" on the oscilloscope.

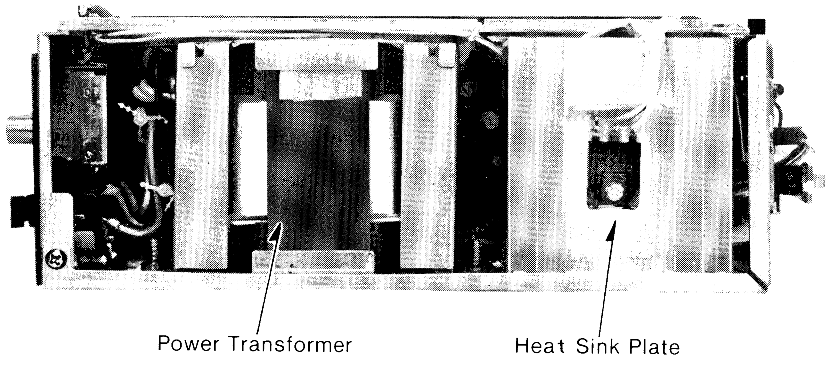
CIRCUIT BOARD LAYOUT


Left Side View
Right Side View

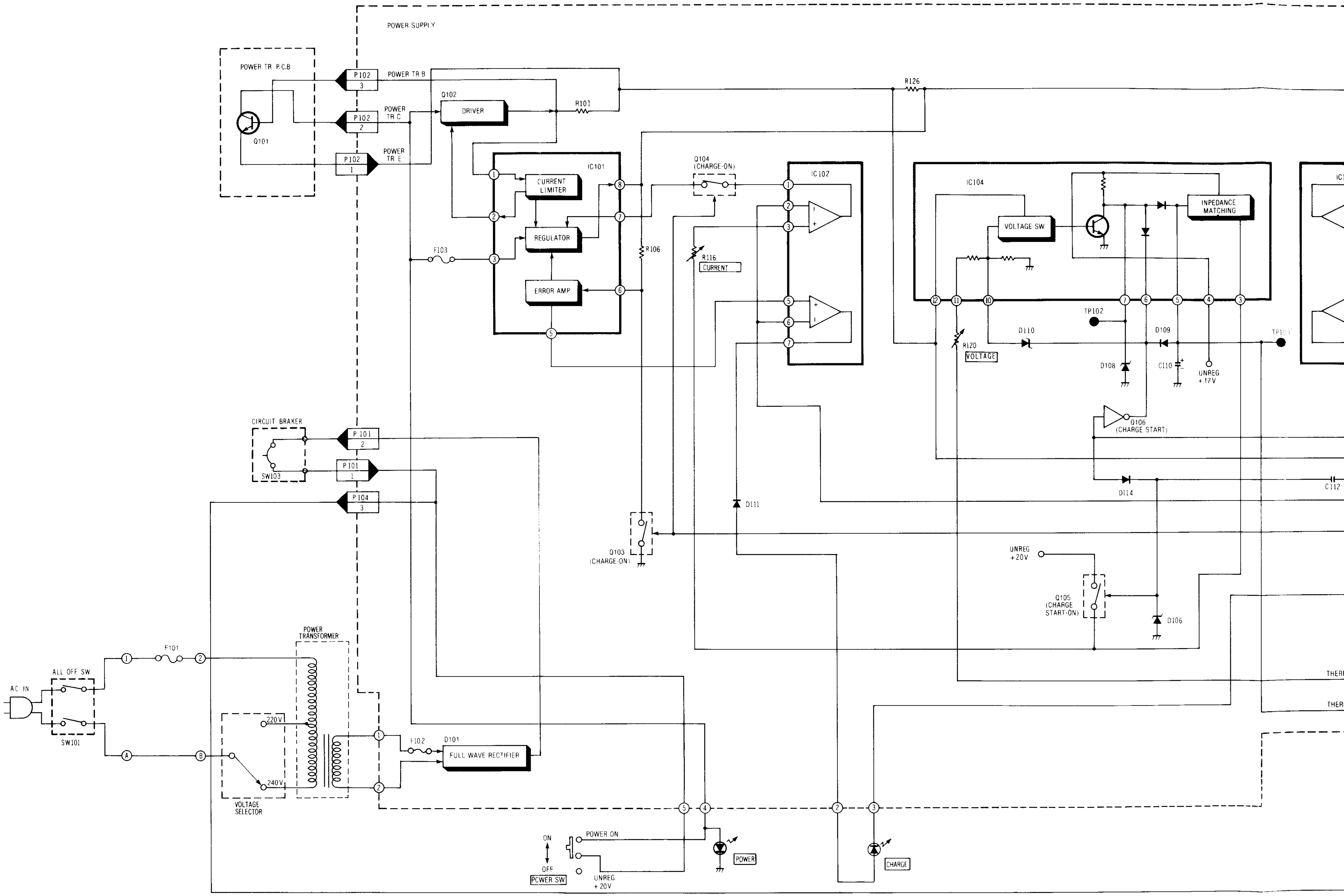
RIGHT SIDE VIEW


Power Supply C.B.A.
Thermistor Board

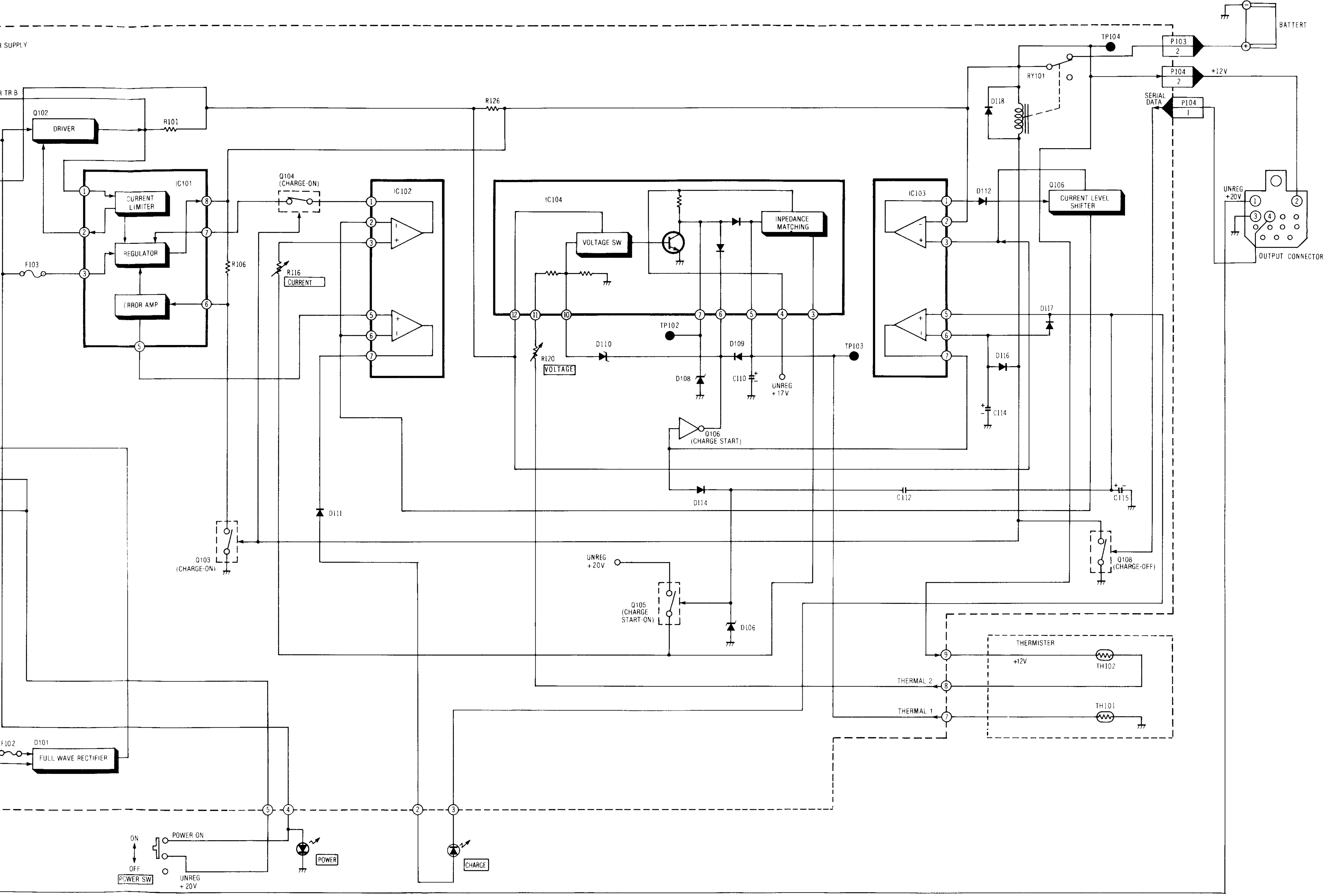
LEFT SIDE VIEW


Power Transformer
Heat Sink Plate

AC ADAPTOR BLOCK DIAGRAM

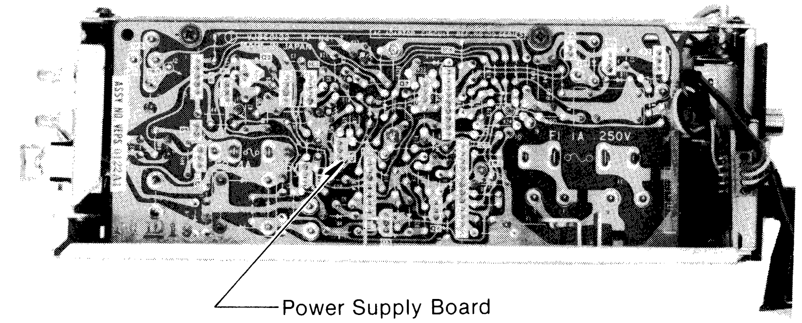

POWER SUPPLY
POWER TR P.C.B
Q101
P102 3
POWER TR B
P102 2
POWER TR C
P102 1
POWER TR E
Q102
DRIVER
R101
R126
IC101
CURRENT LIMITER
REGULATOR
ERROR AMP
F103
R106
Q104 (CHARGE-ON)
R116
CURRENT
IC102
IC104
VOLTAGE SW
INPEDANCE MATCHING
TP102
D110
D109
R120
VOLTAGE
D108
C110
UNREG +17V
TP103
Q106 (CHARGE START)
D114
C112
CIRCUIT BRAKER
SW103
P 101 2
P101 1
P104 3
D111
Q103 (CHARGE-ON)
UNREG +20V
Q105 (CHARGE START-ON)
D106
THERM
THERM
AC IN
ALL OFF SW
SW101
F101
POWER TRANSFORMER
220V
240V
VOLTAGE SELECTOR
F102
D101
FULL WAVE RECTIFIER
ON
OFF
POWER SW
POWER ON
UNREG +20V
POWER
CHARGE

AGRAM



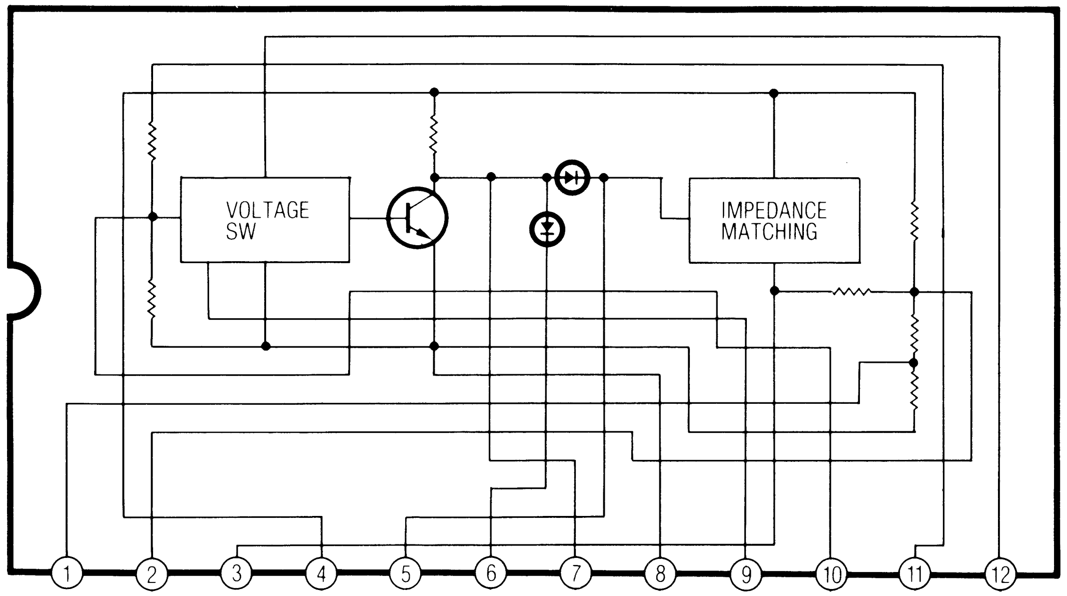
R SUPPLY
R TR B
Q102
DRIVER
R101
R126
IC101
CURRENT LIMITER
REGULATOR
ERROR AMP
F103
R106
Q104 (CHARGE-ON)
R116
CURRENT
IC102
IC104
VOLTAGE SW
INPEDANCE MATCHING
R120
VOLTAGE
TP102
D110
D109
D108
C110
UNREG +17V
TP103
Q106 (CHARGE START)
IC103
D112
Q106
CURRENT LEVEL SHIFTER
D117
D116
C114
D118
RY101
TP104
P103
P104
+12V
SERIAL DATA
BATTERT
UNREG +20V
OUTPUT CONNECTOR
D114
C112
C115
D111
Q103 (CHARGE-ON)
Q108 (CHARGE-OFF)
UNREG +20V
Q105 (CHARGE START-ON)
D106
THERMISTER
+12V
TH102
THERMAL 2
THERMAL 1
TH101
F102
D101
FULL WAVE RECTIFIER
ON
OFF
POWER SW
POWER ON
UNREG +20V
POWER
CHARGE

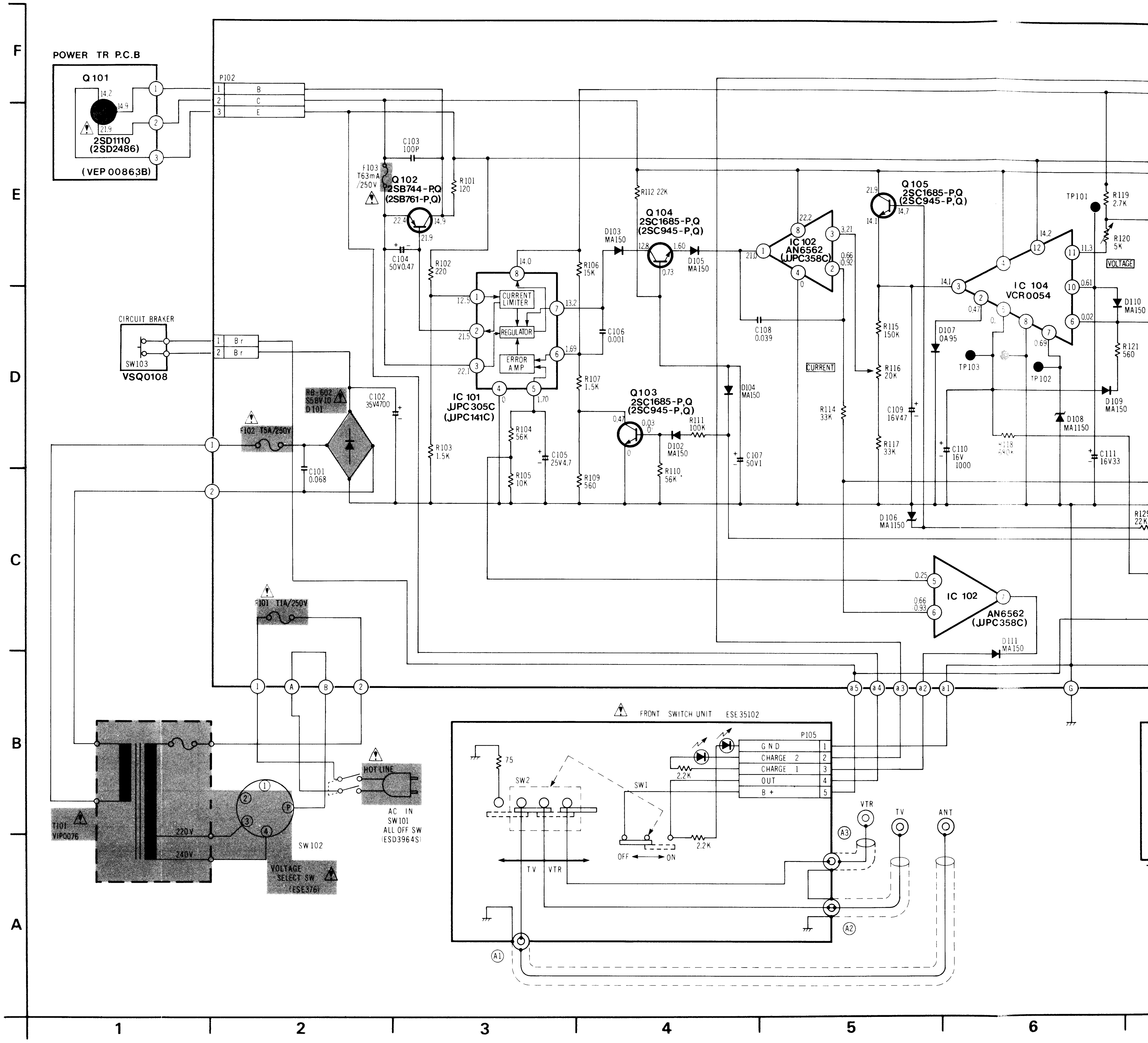
AC ADAPTOR SCHEMATIC DIAGRAM


Power Supply Board

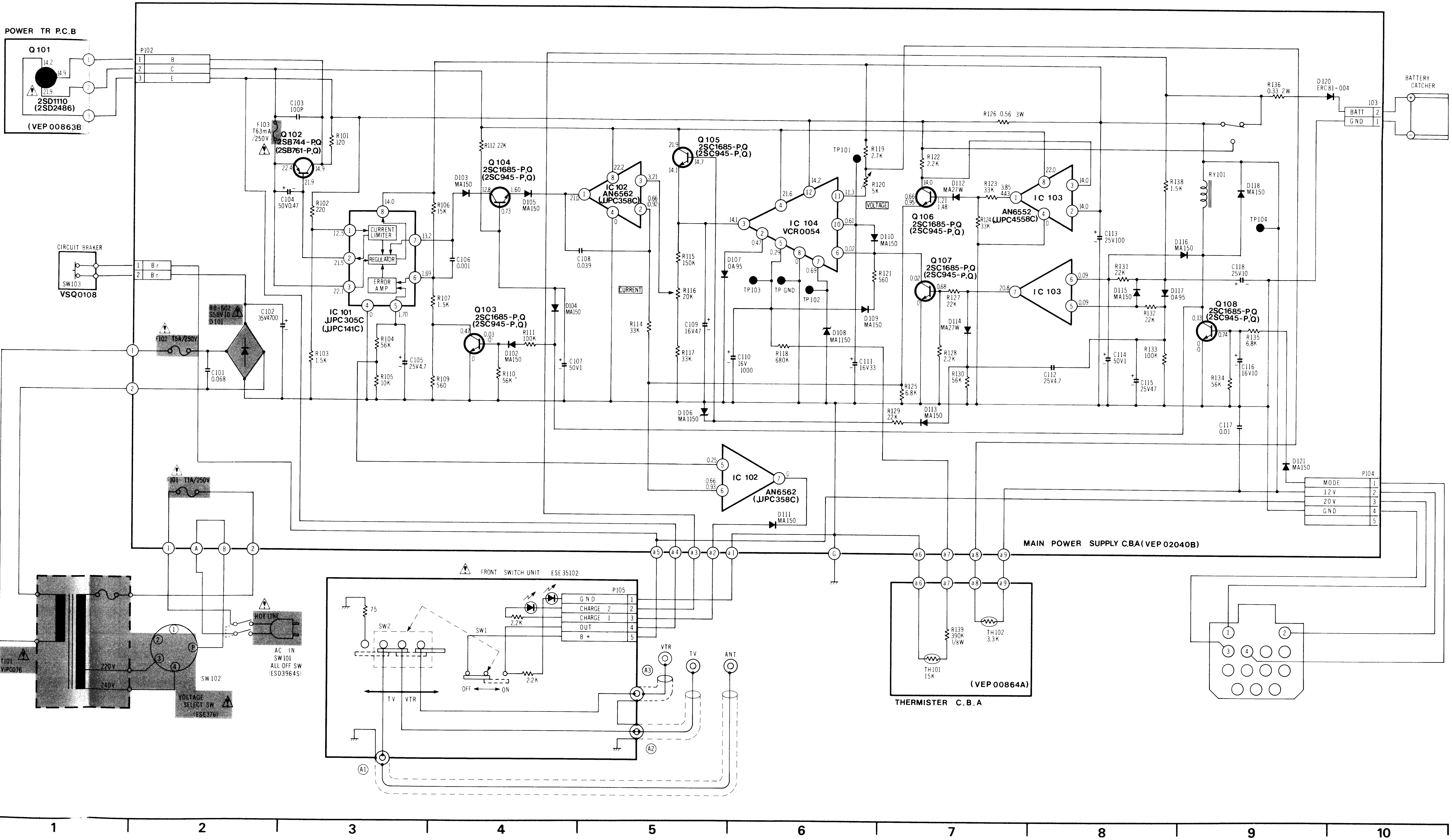
Power Supply Schematic	
Q101	F-1
Q102	E-3
Q103	D-4
Q104	E-4
Q105	E-5
Q106	E-7
Q107	D-7
Q108	D-9
IC101	D-3
IC102	E-5
IC102	C-6
IC103	D-7
IC104	D-6

VCR0054


VOLTAGE SW
IMPEDANCE MATCHING
1
2
3
4
5
6
7
8
9
10
11
12


F
E
D
C
B
A
1
2
3
4
5
6
POWER TR P.C.B
Q101
2SD1110
(2SD2486)
(VEP00863B)
P102
B
C
E
CIRCUIT BRAKER
SW103
VSQ0108
Br
Br
F103 T63mA /250V
Q102
2SB744-P,Q
(2SB761-P,Q)
C103 100P
R101 120
C104 50V0.47
R102 220
R103 1.5K
IC 101
μPC305C
(μPC141C)
CURRENT LIMITER
REGULATOR
ERROR AMP
R104 56K
R105 10K
C105 25V4.7
R106 15K
R107 1.5K
R109 560
C106 0.001
R112 22K
Q104
2SC1685-P,Q
(2SC945-P,Q)
D103 MA150
D105 MA150
Q103
2SC1685-P,Q
(2SC945-P,Q)
D102 MA150
R111 100K
R110 56K
D104 MA150
C107 50V1
C108 0.039
IC 102
AN6562
(μPC358C)
Q105
2SC1685-P,Q
(2SC945-P,Q)
CURRENT
R114 33K
R115 150K
R116 20K
R117 33K
C109 16V47
C110 16V 1000
D107 OA95
TP103
TP102
TP101
IC 104
VCR0054
R119 2.7K
R120 5K
VOLTAGE
D110 MA150
R121 560
D109 MA150
D108 MA1150
C111 16V33
D106 MA1150
IC 102
AN6562
(μPC358C)
D111 MA150
RB-602 S5BV10 D101
F102 T5A/250V
C101 0.068
C102 35V4700
F101 T1A/250V
T101 VIP0076
220V
240V
SW102
VOLTAGE SELECT SW (ESE376)
HOT LINE
AC IN
SW101
ALL OFF SW
(ESD3964S)
FRONT SWITCH UNIT ESE35102
P105
GND
CHARGE 2
CHARGE 1
OUT
B+
SW2
SW1
75
2.2K
2.2K
OFF
ON
TV
VTR
VTR
TV
ANT
A1
A2
A3
a1
a2
a3
a4
a5
G

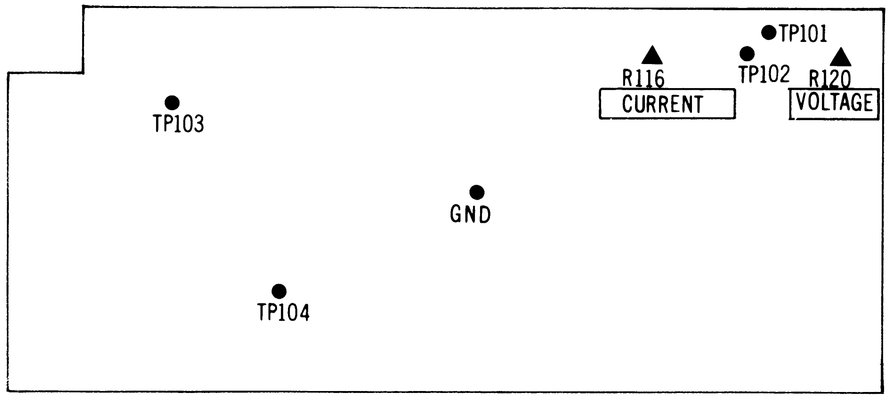
C ADAPTOR SCHEMATIC DIAGRAM

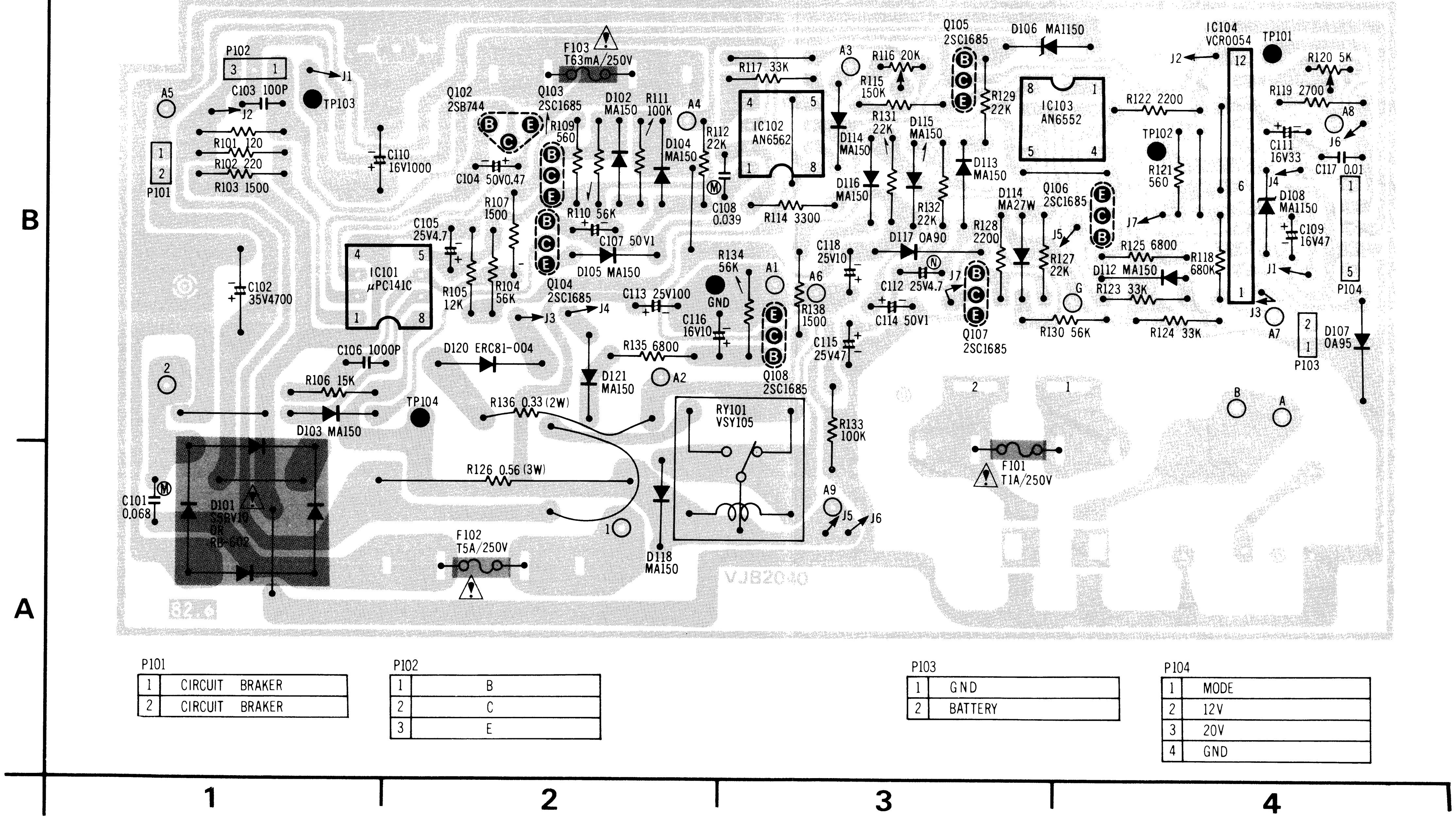


POWER TR P.C.B
Q101
14.2
14.9
21.9
2SD1110
(2SD2486)
(VEP 00863B)
P102
B
C
E
C103
100P
F103
T63mA
/250V
Q102
2SB744-PQ
(2SB761-P,Q)
R101
120
22.4
21.9
14.9
C104
50V0.47
R102
220
R112 22K
Q104
2SC1685-P,Q
(2SC945-P,Q)
D103
MA150
12.8
1.60
0.73
D105
MA150
R106
15K
14.0
CURRENT LIMITER
REGULATOR
ERROR AMP
IC 101
μPC305C
(μPC141C)
12.5
21.5
22.1
13.2
1.69
1.70
C106
0.001
R107
1.5K
R103
1.5K
R104
56K
R105
10K
C105
25V4.7
R109
560
Q103
2SC1685-P,Q
(2SC945-P,Q)
0.47
0.03
D102
MA150
R111
100K
R110
56K
D104
MA150
C107
50V1
IC 102
AN6562
(μPC358C)
22.2
3.21
0.66
0.92
21.8
C108
0.039
CURRENT
Q105
2SC1685-P,Q
(2SC945-P,Q)
21.9
14.1
14.7
R115
150K
R116
20K
R117
33K
R114
33K
C109
16V47
D106
MA1150
IC 104
VCR0054
14.2
21.6
11.3
14.1
0.47
0.29
0.69
0.61
0.02
D107
OA95
TP103
TP GND
TP102
C110
16V
1000
R118
680K
D108
MA1150
C111
16V33
TP101
R119
2.7K
R120
5K
VOLTAGE
D110
MA150
R121
560
D109
MA150
R125
6.8K
R129
22K
D113
MA150
R122
2.2K
14.0
0.66
0.95
D112
MA27W
1.21
1.48
R123
33K
3.85
4.43
IC 103
AN6552
(μPC4558C)
22.0
14.0
14.0
R124
33K
Q106
2SC1685-P,Q
(2SC945-P,Q)
C113
25V100
Q107
2SC1685-P,Q
(2SC945-P,Q)
0.02
0.68
R127
22K
20.8
0.09
0.09
D114
MA27W
R128
2.2K
R130
56K
C112
25V4.7
R131
22K
D115
MA150
R132
22K
D117
OA95
R133
100K
C114
50V1
C115
25V47
R126 0.56 3W
R136
0.33 2W
D120
ERC81-004
BATTERY CATCHER
103
BATT
GND
R138
1.5K
RY101
D118
MA150
TP104
D116
MA150
C118
25V10
Q108
2SC1685-P,Q
(2SC945-P,Q)
0.13
0.74
R135
6.8K
C116
16V10
R134
56K
C117
0.01
D121
MA150
P104
MODE
12V
20V
GND
CIRCUIT BRAKER
SW103
VSQ0108
Br
Br
RB-602
S5BV10
D101
C102
35V4700
F102 T5A/250V
C101
0.068
IC 102
AN6562
(μPC358C)
0.25
0.66
0.93
D111
MA150
MAIN POWER SUPPLY C.B.A (VEP 02040B)
F101 T1A/250V
a5
a4
a3
a2
a1
G
a6
a7
a8
a9
T101
VIPQ076
220V
240V
SW102
VOLTAGE SELECT SW
(ESE376)
HOT LINE
AC IN
SW101
ALL OFF SW
(ESD3964S)
FRONT SWITCH UNIT ESE35102
P105
GND
CHARGE 2
CHARGE 1
OUT
B+
75
SW2
SW1
2.2K
2.2K
OFF
ON
TV
VTR
VTR
TV
ANT
A1
A2
A3
R139
390K
1/8W
TH102
3.3K
TH101
15K
(VEP 00864A)
THERMISTER C.B.A
1
2
3
4
5
6
7
8
9
10

MAIN POWER SUPPLY C.B.A
(VEP02040B)

Power Supply P.C.B	
Q102	B-2
Q103	B-2
Q104	B-2
Q105	B-3
Q106	B-4
Q107	B-3
Q108	B-3
IC101	B-1
IC102	B-3
IC103	B-3
IC104	B-4


TP101
TP102
R116
CURRENT
R120
VOLTAGE
TP103
GND
TP104


B
A
P102
F103 T63mA/250V
Q102 2SB744
Q103 2SC1685
D102 MA150
R111 100K
A4
R117 33K
A3
R116 20K
R115 150K
Q105 2SC1685
D106 MA1150
IC104 VCR0054
TP101
R120 5K
J1
J2
TP103
A5
C103 100P
R101 120
R102 220
R103 1500
P101
C110 16V1000
C104 50V0.47
R109 560
D104 MA150
R112 22K
IC102 AN6562
R131 22K
D115 MA150
D114 MA150
R129 22K
IC103 AN6552
R122 2200
R119 2700
A8
J6
C111 16V33
C117 0.01
TP102
R121 560
D113 MA150
D116 MA150
R107 1500
R110 56K
C108 0.039
R114 3300
R132 22K
D114 MA27W
Q106 2SC1685
J4
D108 MA1150
C105 25V4.7
C107 50V1
D105 MA150
R134 56K
A1
D117 OA90
R128 2200
J5
R127 22K
J7
R125 6800
R118 680K
C109 16V47
P104
IC101 μPC141C
R105 12K
R104 56K
Q104 2SC1685
C113 25V100
GND
A6
C118 25V10
C112 25V4.7
C114 50V1
D112 MA150
R123 33K
J1
J3
C102 35V4700
J3
J4
C116 16V10
R138 1500
Q107 2SC1685
R130 56K
R124 33K
A7
P103
D107 OA95
C106 1000P
D120 ERC81-004
R135 6800
C115 25V47
Q108 2SC1685
D121 MA150
A2
R106 15K
D103 MA150
TP104
R136 0.33 (2W)
RY101 VSY105
R133 100K
2
1
B
A
F101 T1A/250V
C101 0.068
D101 S3RV10 OR RB-602
R126 0.56 (3W)
A9
J5
J6
F102 T5A/250V
D118 MA150
VJB2040
1
2
3
4

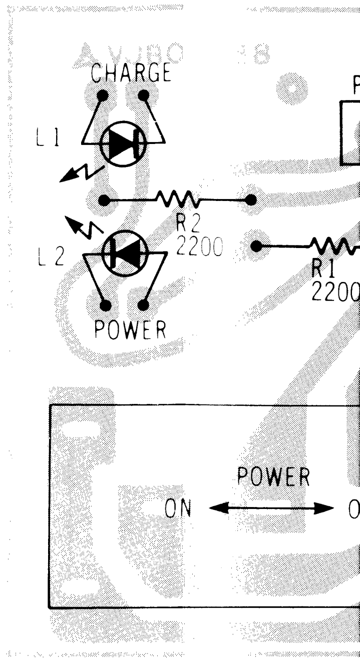
P101	
1	CIRCUIT BRAKER
2	CIRCUIT BRAKER

P102	
1	B
2	C
3	E

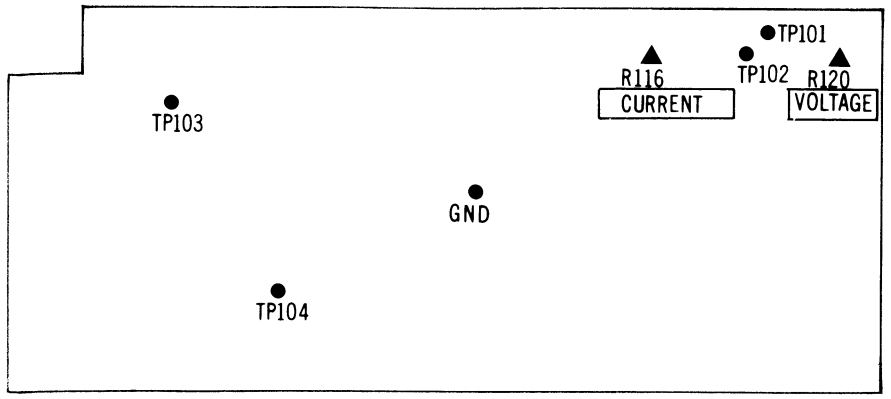
P103	
1	GND
2	BATTERY

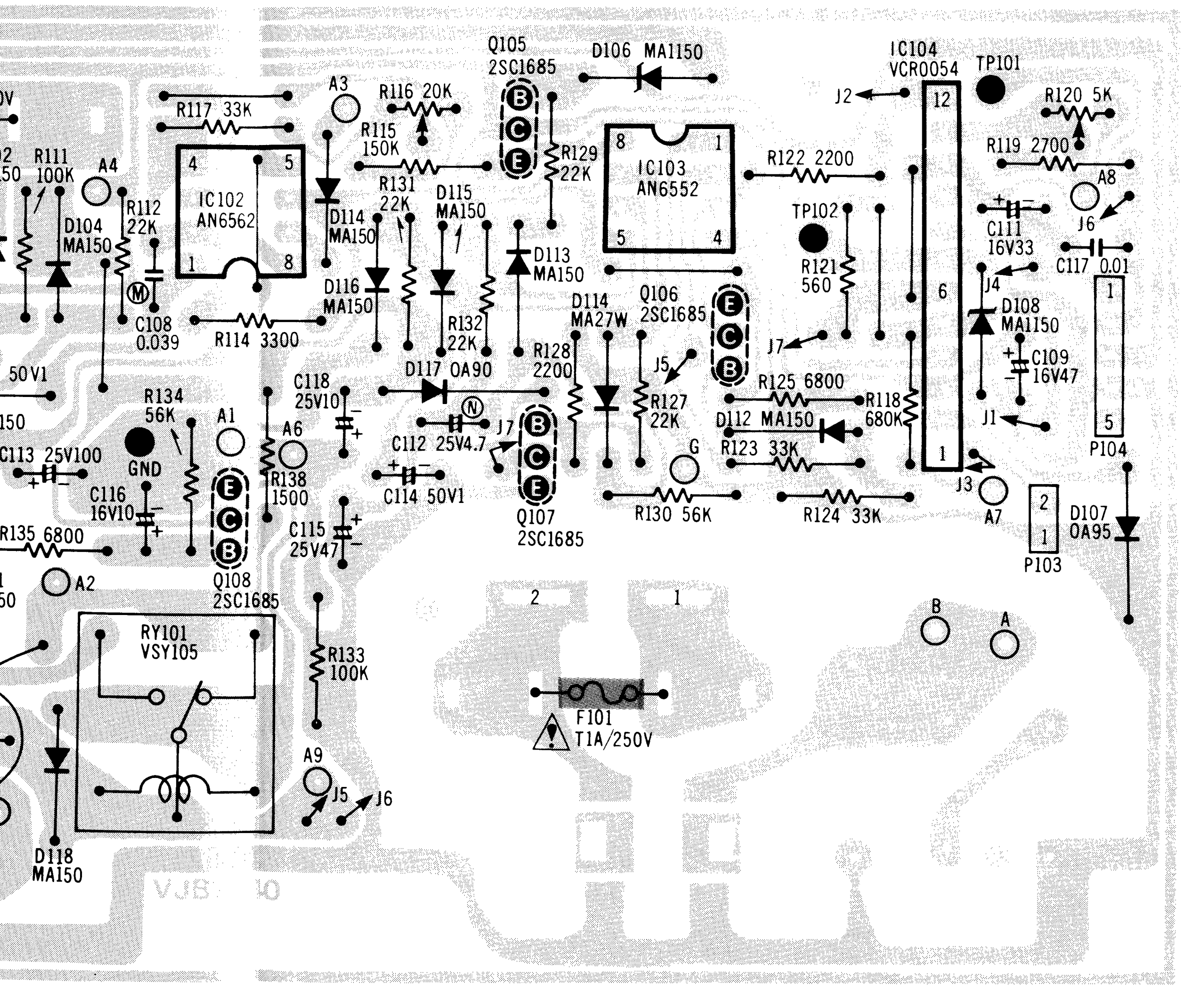
P104	
1	MODE
2	12V
3	20V
4	GND

FRONT SWITCH UNIT


CHARGE
L1
R2 2200
L2
POWER
R1 2200
POWER
ON

POWE


TP101
R116
TP102
R120
CURRENT
VOLTAGE
TP103
GND
TP104


Q105
2SC1685
D106 MA1150
IC104
VCR0054
TP101
R117 33K
A3
R116 20K
R115 150K
R129 22K
R111 100K
A4
R112 22K
IC102
AN6562
R131 22K
D115 MA150
IC103
AN6552
R122 2200
R120 5K
R119 2700
A8
J6
J2
D104 MA150
D114 MA150
D113 MA150
TP102
C111 16V33
C117 0.01
D116 MA150
C108 0.039
R114 3300
R132 22K
D114 MA27W
Q106 2SC1685
R121 560
J4
D108 MA1150
C109 16V47
R128 2200
J7
R125 6800
50V1
R134 56K
A1
C118 25V10
D117 OA90
J5
R127 22K
R118 680K
D112 MA150
J1
P104
A6
C112 25V4.7
J7
R123 33K
C113 25V100
GND
C116 16V10
R138 1500
C114 50V1
G
J3
A7
R130 56K
R124 33K
P103
D107 OA95
R135 6800
C115 25V47
Q107 2SC1685
A2
Q108 2SC1685
B
A
RY101
VSY105
R133 100K
F101
T1A/250V
A9
J5
J6
D118 MA150
VJB

P103

1	GND
2	BATTERY

P104

1	MODE
2	12V
3	20V
4	GND

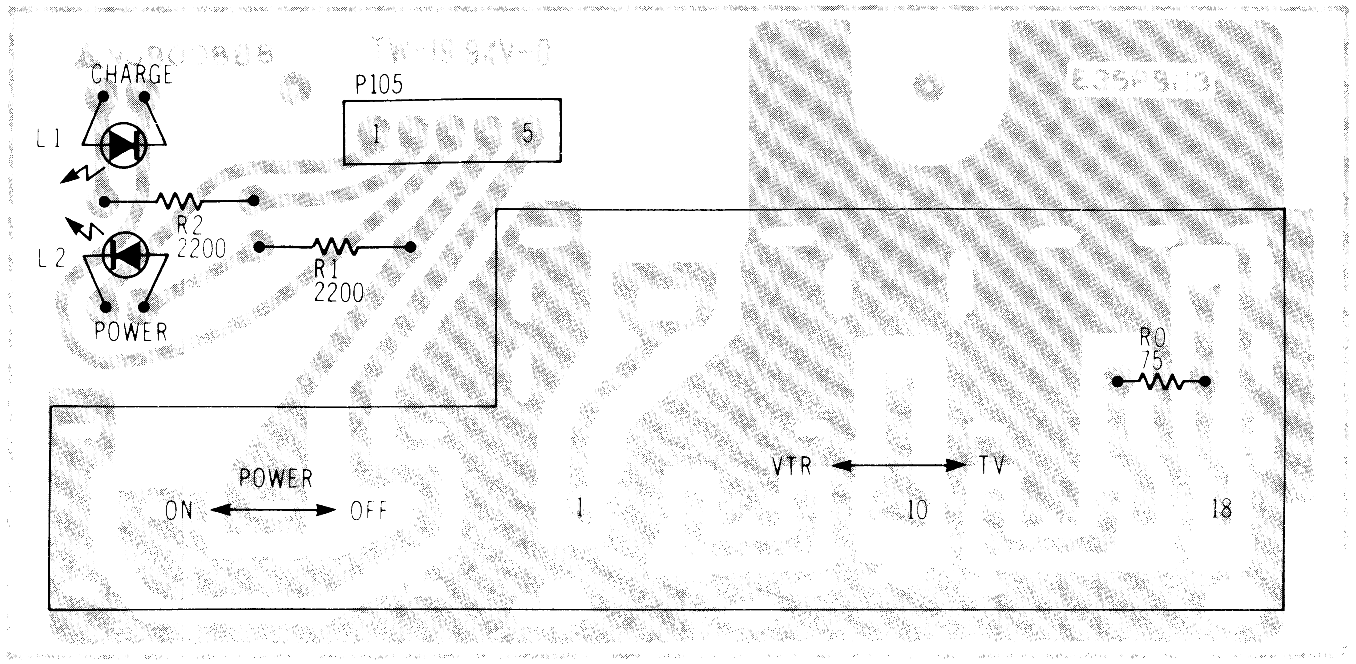
3

4

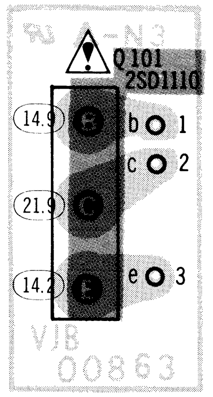
FRONT SWITCH UNIT (ESE35102)

P105

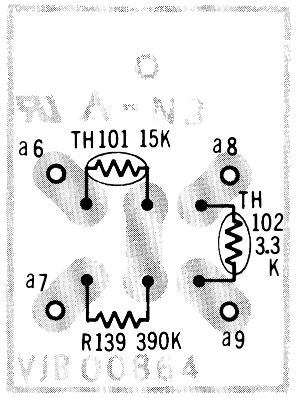
1	GND
2	CHG 2
3	CHG 1
4	OUT
5	B +


CHARGE
P105
1
5
E35P8113
L1
R2
2200
L2
R1
2200
POWER
R0
75
POWER
ON
OFF
1
VTR
TV
10
18

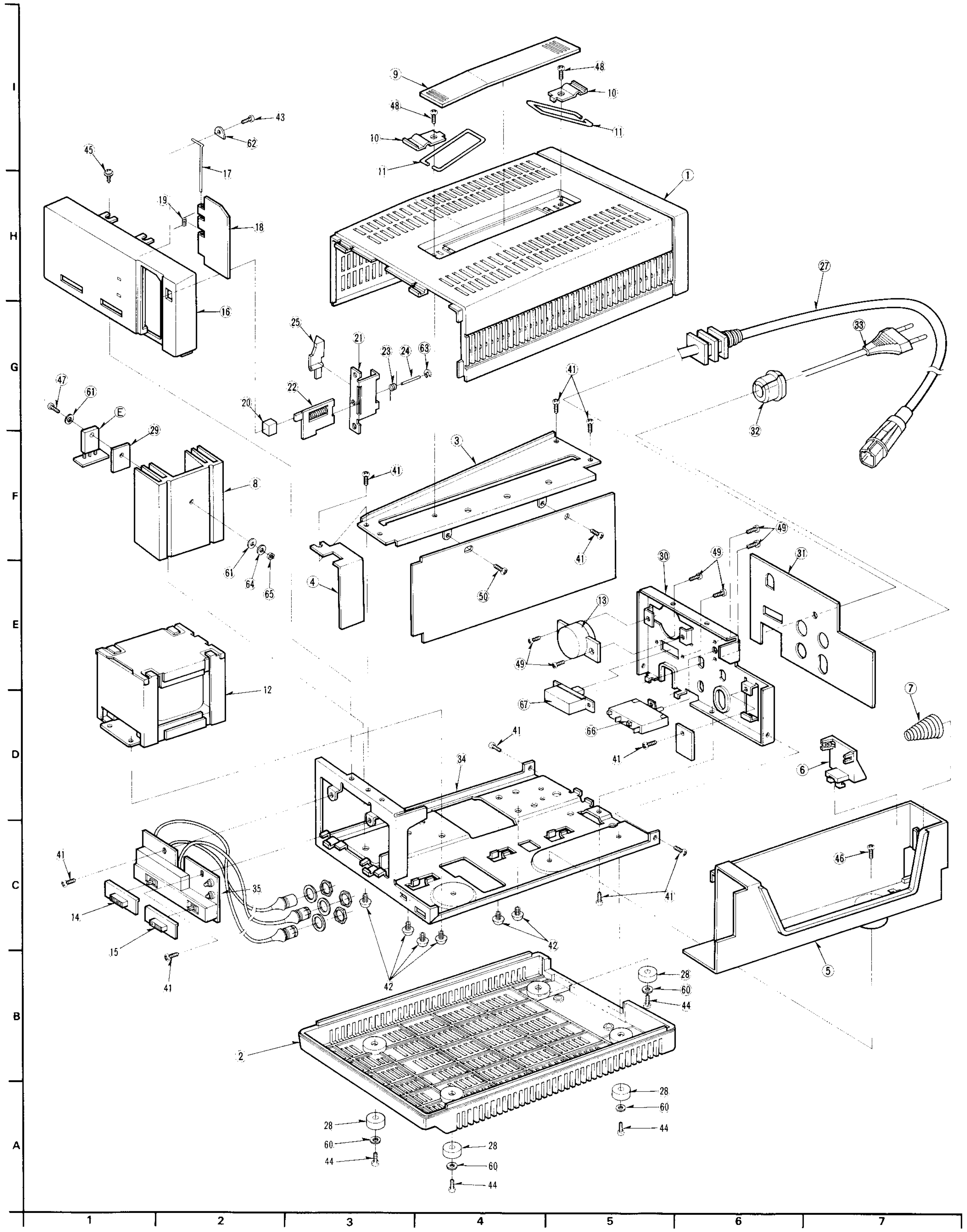
POWER TR C.B.A (VEP00863B)


Q101
2SD1110
14.9
b 1
c 2
21.9
14.2
e 3
VJB
00863

THERMISTOR C.B.A (VEP00864A)


a6
TH101 15K
a8
TH 102 3.3 K
a7
R139 390K
a9
VJB 00864

EXPLODED VIEWS ① *AC Adaptor Section*



I
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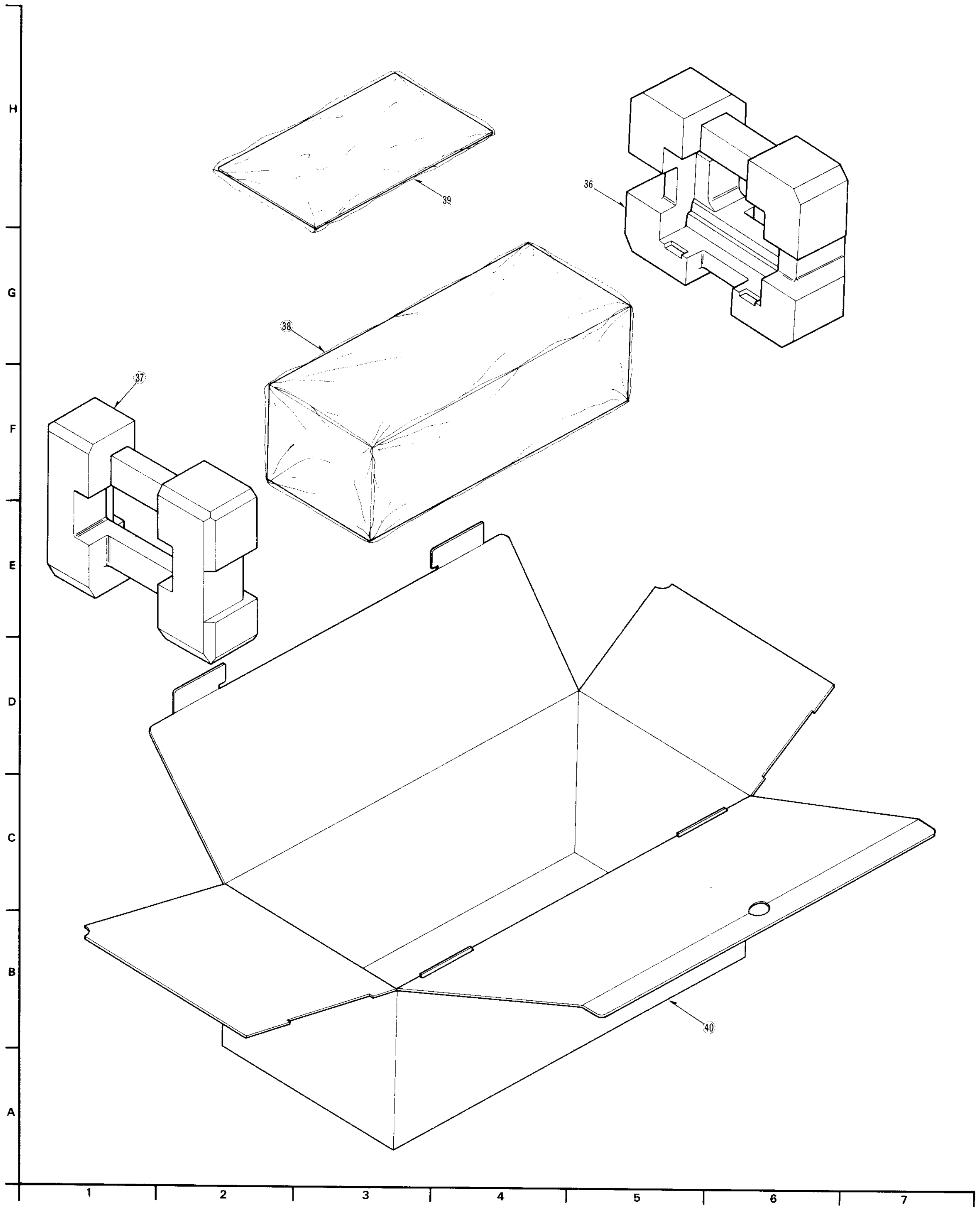
67
E

② *Packing Parts & Accessories Section*



H
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36
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40

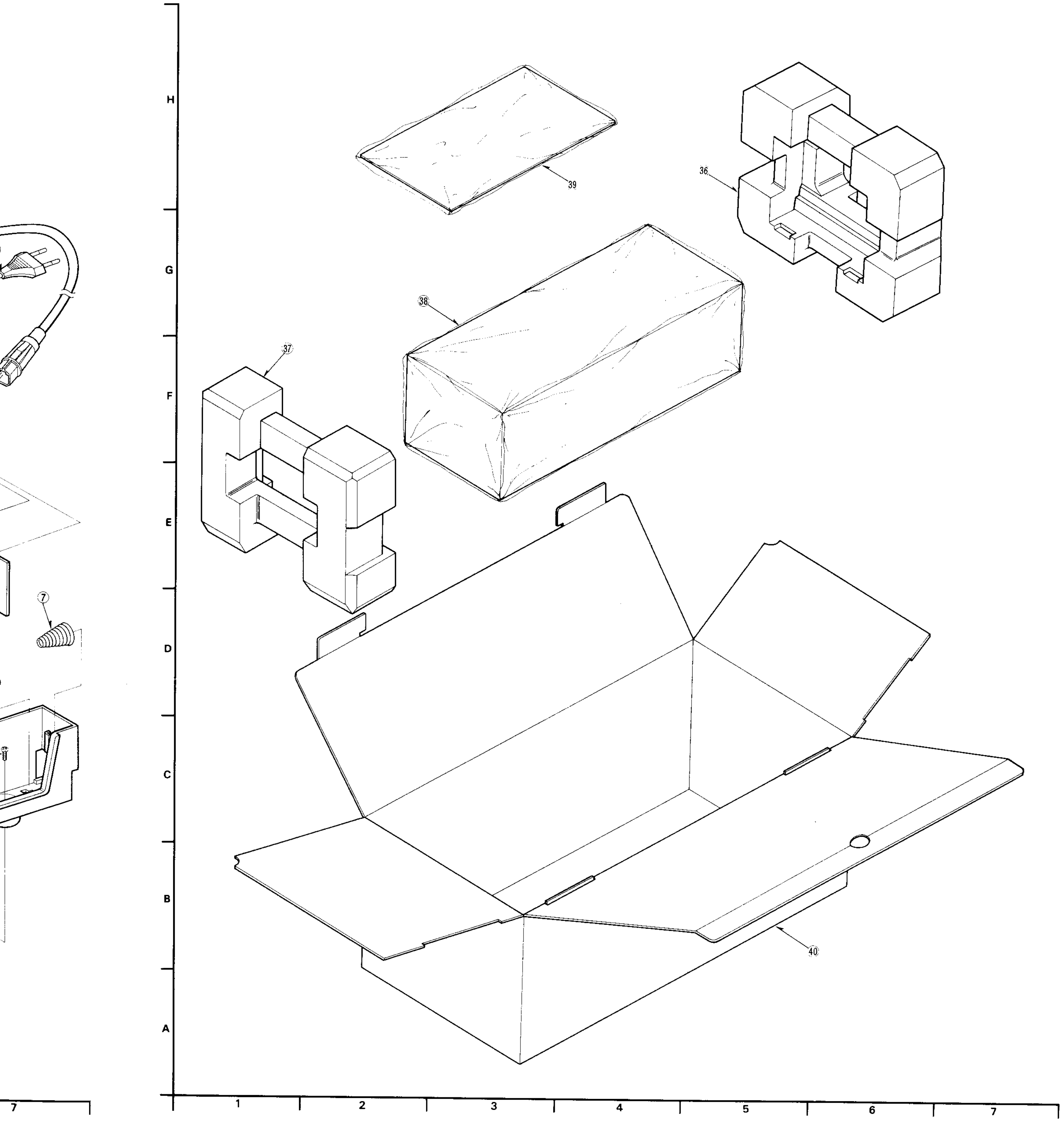
MECHANICAL

Model No. NV-B11

Notes:
1. * Be sure to make your ord

Ref. No.		Part N
1 (1)		VGP0523
2 (1)		VKU0170
3 (1)		VMA5777
4 (1)		VMZ0315
5 (1)		VKM0125
6 (1)		VJF0106
7 (1)		VMB0969
8 (1)		VSC0684
9 (1)		VKH0069
10 (1)		VMA5776
11 (1)		VMA5775
12 (1)		VTP0076
13 (1)		ESE376
14 (1)		VGT0244
15 (1)		VGT0271
16 (1)		VGP0716
17 (1)		VMS2149
18 (1)		VKF0115
19 (1)		VMB0981
20 (1)		VGU0319
21 (1)		VMA5790
22 (1)		VMM0099
23 (1)		VMB0990
24 (1)		VMS2150
25 (1)		VML1360
27 (1)		VJA0175
28 (1)		VKA0023
29 (1)		S-34
30 (1)		VMA6023
31 (1)		VGN1956
32 (1)		VJF0017
33 (1)		VJA0111
		VJA0112
34 (1)		VMK0214
35 (1)		ESE35102
36 (2)		VPN0728
37 (2)		VPN0727
38 (2)		VPF0165
39 (2)		VQF0847
		VQF0848
40 (2)		VPG1148
		VPG1149
41 (1)		XTV3+6FS
42 (1)		XTT4+6FS
43 (1)		XTV3+6J
44 (1)		XSB3+10F
45 (1)		XTW3+6L
46 (1)		XTV3+8FS
47 (1)		XSN3+14F
48 (1)		XSB4+8FC
49 (1)		XYN3+F8S
50 (1)		XTW3+6M
		XSB3+6FZ
60 (1)		XWG3E10F
61 (1)		XWG3FC
62 (1)		XWT3

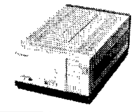
② *Packing Parts & Accessories Section*



MECHANICAL REPLACEMENT PARTS LIST

Model No. NV-B11

Notes:
1. ∗ Be sure to make your orders of replacement parts according to this list.



Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
1 (1)	VGP0523	Top Panel	1	
2 (1)	VKU0170	Bottom Panel	1	
3 (1)	VMA5777	Handle Angle	1	
4 (1)	**VMZ0315**	**Barrier**	**1**	**NV-B11E ⚠**
5 (1)	VKM0125	Battery Case	1	
6 (1)	VJF0106	Battery Catcher	1	
7 (1)	VMB0969	Battery Push Spring	1	
8 (1)	VSC0684	Heat Sink Plate	1	
9 (1)	VKH0069	Handle	1	
10 (1)	VMA5776	Handle Mount Angle (B)	2	
11 (1)	VMA5775	Handle Mount Angle (A)	2	
12 (1)	**VTP0076**	**Power Transformer**	**1**	⚠
13 (1)	**ESE376**	**Voltage Selector**	**1**	⚠
14 (1)	VGT0244	TV/VTR Select Switch Knob	1	
15 (1)	VGT0271	Power Switch Knob	1	
16 (1)	VGP0716	Front Panel	1	
17 (1)	VMS2149	Battery Door Shaft	1	
18 (1)	VKF0115	Battery Door	1	
19 (1)	VMB0981	Battery Door Spring	1	
20 (1)	VGU0319	Eject Button	1	
21 (1)	VMA5790	Eject Angle	1	
22 (1)	VMM0099	Eject Rod	1	
23 (1)	VMB0990	Eject Return Spring	1	
24 (1)	VMS2150	Lock Lever Shaft	1	
25 (1)	VML1360	Lock Lever	1	
27 (1)	VJA0175	Multi Connector	1	
28 (1)	VKA0023	Rubber Foot	4	
29 (1)	S-34	Mica Seat	1	
30 (1)	VMA6023	Rear Frame	1	
31 (1)	VGN1956	Rear Decoration	1	
32 (1)	**VJF0017**	**AC Cord Bushing**	**1**	⚠
33 (1)	**VJA0111**	**AC Cord**	**1**	**NV-B11E ⚠**
	VJA0112	**AC Cord**	**1**	**NV-B11B ⚠**
34 (1)	VMK0214	Chassis Frame	1	
35 (1)	**ESE35102**	**Front Switch Unit**	**1**	⚠
36 (2)	VPN0728	Cushion (Rear)	1	
37 (2)	VPN0727	Cushion (Front)	1	
38 (2)	VPF0165	Polyethylene Bag	1	
39 (2)	**VQF0847**	**Fan Bag**	**1**	**NV-B11E ⚠**
	VQF0848	**Fan Bag**	**1**	**NV-B11B ⚠**
40 (2)	VPG1148	Packing Case	1	NV-B11E
	VPG1149	Packing Case	1	NV-B11B
		Screws		
41 (1)	XTV3+6FS		10	
42 (1)	XTT4+6FS		7	
43 (1)	XTV3+6J		3	
44 (1)	XSB3+10FZS		4	
45 (1)	XTW3+6L		1	
46 (1)	XTV3+8FS		1	
47 (1)	XSN3+14FCS		1	
48 (1)	XSB4+8FCS		2	
49 (1)	XYN3+F8S	with spring washer	2	
50 (1)	XTW3+6M		1	
	XSB3+6FZS		4	
		Washers		
60 (1)	XWG3E10FX		4	
61 (1)	XWG3FC		2	
62 (1)	XWT3		1	
63 (1)	XUC2FTK	Retaining Ring (E-Type)	1	
64 (1)	NO 70		1	
65 (1)	NO 50		1	
66 (1)	**VSQ0108**	**Circuit Braker**		⚠
	YEK10869	Circuit Braker Housing		
67 (1)	**ESD3964S**	**All Off Switch**		⚠
	VMB0425	Leaf Lever Spring		
	VMX0472	Knob Spacer		
	VGN1944	**Rated Label**		**NV-B11E ⚠**
	VGN1943	**Rated Label**		**NV-B11B ⚠**
	VPF3	Polyethylene Bag (AC Cord)		
	VHN0011	Plastic Revet	2	
			4	

ELECTRICAL REPLACEMENT PARTS LIST

Model No. NV-B11

Notes:

1. • Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
   Components identified by ⚠ have special characteristics important for safety.
   When replacing any of these components, use only the original ones.
3. Unless otherwise specified,
   All resistors are in OHMS (Ω), 1/8W ± 5% carbon. K=1,000Ω, M=1,000KΩ.
   All capacitors are in MICROFARADS (μF), ± 10% P=μμF.

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
		VEP2040A	Main Power Supply P.C.B. Unit	1	NV-B11E
		VEP2040B		1	NV-B11B
		VEP00863B	Power TR. P.C.B. Unit	1	
		VEP00864A	Sub-Thermistor P.C.B. Unit	1	
			Integrated Circuits		
IC101		μPC305C		1	or μPC141C
IC102		AN6562		1	or μPC358C
IC103		AN6552		1	or μPC4558C
IC104		VCR0054		1	
			Transistors		
Q102		2SB744		1	(P,Q) or 2SB761(P,Q)
Q103-108		2SC1685		6	(P,Q) or 2SC945(P,Q)
			Diodes		
D101		S5VB10	Rectifire Stack	1	or RB602 ⚠
D102-105		MA150		4	
D106		MA1150	Zenner	1	
D107		0A95		1	
D108		MA1150	Zenner	1	
D109-D111		MA150		3	
D113		MA150		1	
D114		MA27W		1	
D115,116		MA150		2	
D117		0A95		1	
D118		MA150			
D120		ERC81-004	Schottky	1	
D121		MA150		1	
			Resistors		
R101		ERD25TJ121	120	1	
R102		ERD25TJ221	220	1	
R103		ERD25TJ152	1.5K	1	
R104		ERD25TJ563	56K	1	
R105		ERD25TJ123	12K	1	
R106		ERD25TJ153	15K	1	
R107		ERD25TJ152	1.5K	1	
R109		ERD25TJ561	560	1	
R110		ERD25TJ563	56K	1	
R111		ERD25TJ104	100K	1	
R112		ERD25TJ223	22K	1	
R114		ERD25TJ332	3.3K	1	
R115		ERD25TJ154	150K	1	
R116		EVN50AA00B24	Variable 20K	1	
R117		ERD25TJ333	33K	1	
R118		ERD25TJ684	680K	1	
R119		ERD25TJ272	2.7K	1	
R120		EVN50AA00B53	Variable 5K	1	
R121		ERD25TJ561	560	1	
R122		ERD25TJ222	2.2K	1	
R123,124		ERD25TJ333	33K	2	
R125		ERD25TJ682	6.8K	1	
R126		ERF3AKR56	Cement 3W 500K	1	
R127		ERD25TJ223	22K	1	
R128		ERD25TJ222	2.2K	1	
R129		ERD25TJ223	22K	1	
R130		ERD25TJ563	56K	1	
R131,132		ERD25TJ223	22K	2	
R133		ERD25JT104	100K	1	
R134		ERD25TJ563	56K	1	
R135		ERD25TJ682	6.8K	1	
R136		ERX2ANJR33	Metal Oxide 2W 0.33	1	
R137		ERC12ZGK275	Solid 1/2W 270K	1	
R138		ERD25TJ152	1.5K	1	
			Capacitors		
C101		ECQM1H683KZ	Mylar 50V 0.068	1	
C102		ECEA35R472	Electrolytic 35V 4700	1	
C103		ECKF1H101KC	Ceramic 50V 100P	1	
C104		ECEA1HSR47	Electrolytic 50V 0.47	1	
C105		ECEA1ES4R7	Electrolytic 25V 4.7	1	
C106		ECKF1H102KB	Ceramic 50V 1000P	1	
C107		ECEA1HS010	Electrolytic 50V 1	1	
C108		ECQM1H393KZ	Mylar 50V 0.039	1	
C109		ECEA1CS470	Electrolytic 16V 47	1	
C110		ECEA16V102	Electrolytic 16V 1000	1	
C111		ECEA1CS330	Electrolytic 16V 33	1	
C112		ECEA1EN4R7	Non-Polar 25V 4.7	1	
C113		ECEA1ES101	Electrolytic 25V 100	1	
C114		ECEA1HS010	Electrolytic 50V 1	1	
C115		ECEA1ES470	Electrolytic 25V 47	1	
C116		ECEA1CS100	Electrolytic 16V 10	1	
C117		ECKF1H103ZF	Ceramic 50V 0.01	1	
C118		ECEA1ES100	Electrolytic 25V 10	1	
			Fuses		
F101		XBA2C10TR0C	T1A/250V	1	⚠
F102		XBA2C50TR0C	T5A/250V	1	⚠
F103		XBA2C063TR0C	T63mA/250V	1	⚠
			Connectors		
P101		VJP1141	2P	1	
P102		VJP1142	3P	1	
P103		VJP1141	2P	1	
P104		VJP1143	5P	1	
			Miscellaneous		
RY101		VY105-1		1	
TP101-104		VJH23		4	
TP GND		VJH23		1	
		VMZ0429	Fuse Cover		NV-B11B ⚠
		XYE3+EF6F		1	

Panasonic

MATSUSHITA ELECTRIC

Printed in Japan

ORDER NO. VRD-8206-099

Service Manual

Wired Remote Control

Vol. 7

NV-A13-E

Panasonic
REW
PLAY
FF
REC
STOP
PAUSE/STILL
STILL ADV
REVIEW
SLOW
CUE

SPECIFICATIONS

Weight:	180 g
Dimensions:	62(W) × 14(H) × 101(D) mm
Cable Length:	Approx. 5 m

Weight and dimensions shown are approximate.

Specifications are subject to change without notice.

Panasonic

Matsushita Electric Trading Co., Ltd.
PO Box 288, Central Osaka Japan

REMOTE CONTROL UNIT

The Control Unit NV-A13 is provided with the Portable Video Recorder NV-100, allowing you to operate the recorder from as far away as 5 meters. Simply plug the control unit cable connector into the remote control terminal on the recorder. Make sure that the power switch on both the power source and recorder are ON before operating the remote control unit.

CONTENTS

SPECIFICATIONS..Cover
REMOTE CONTROL UNIT.....................................7-1
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WIRED REMOTE CONTROL SCHEMATIC DIAGRAM..................7-3
WIRED REMOTE CONTROL UNIT...............................7-4
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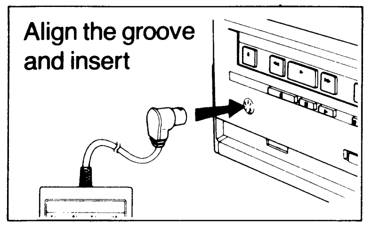
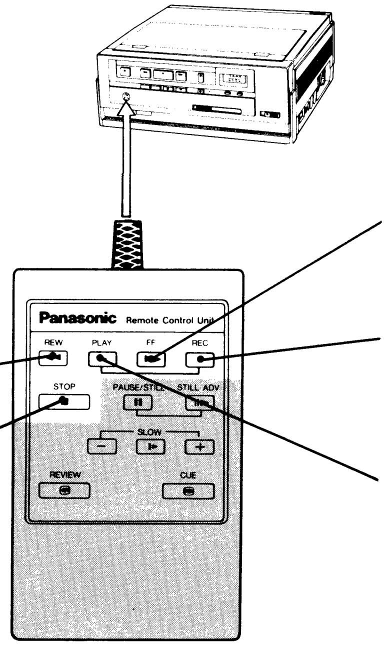
ELECTRICAL REPLACEMENT PARTS LIST.......................7-6

CONTROLS AND THEIR FUNCTION


Align the groove and insert


Panasonic Remote Control Unit
REW
PLAY
FF
REC
STOP
PAUSE/STILL
STILL ADV
SLOW
REVIEW
CUE

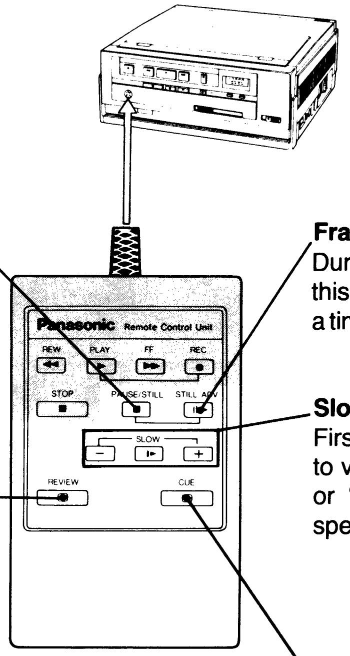
Rewind Button
Press this button to rewind tapes.

Stop Button
Press this button to stop the tape.

Fast Forward Button
Press this button to move the tape forward rapidly.

Record Button
Recording is started by pressing this button and the Play Button at the same time.

Play Button
Press this button to playback recorded tapes.


Panasonic Remote Control Unit
REW
PLAY
FF
REC
STOP
PAUSE/STILL
STILL ADV
SLOW
REVIEW
CUE

Pause/Still Button
Press this button to temporarily stop the tape movement in either the recording or playback mode. During playback, a still-frame picture is produced when the pause is in use. Press again to release pause.

Review Button
During the play mode pressing this button will allow you to view the tape in reverse at about 5 times the recorded tape speed.

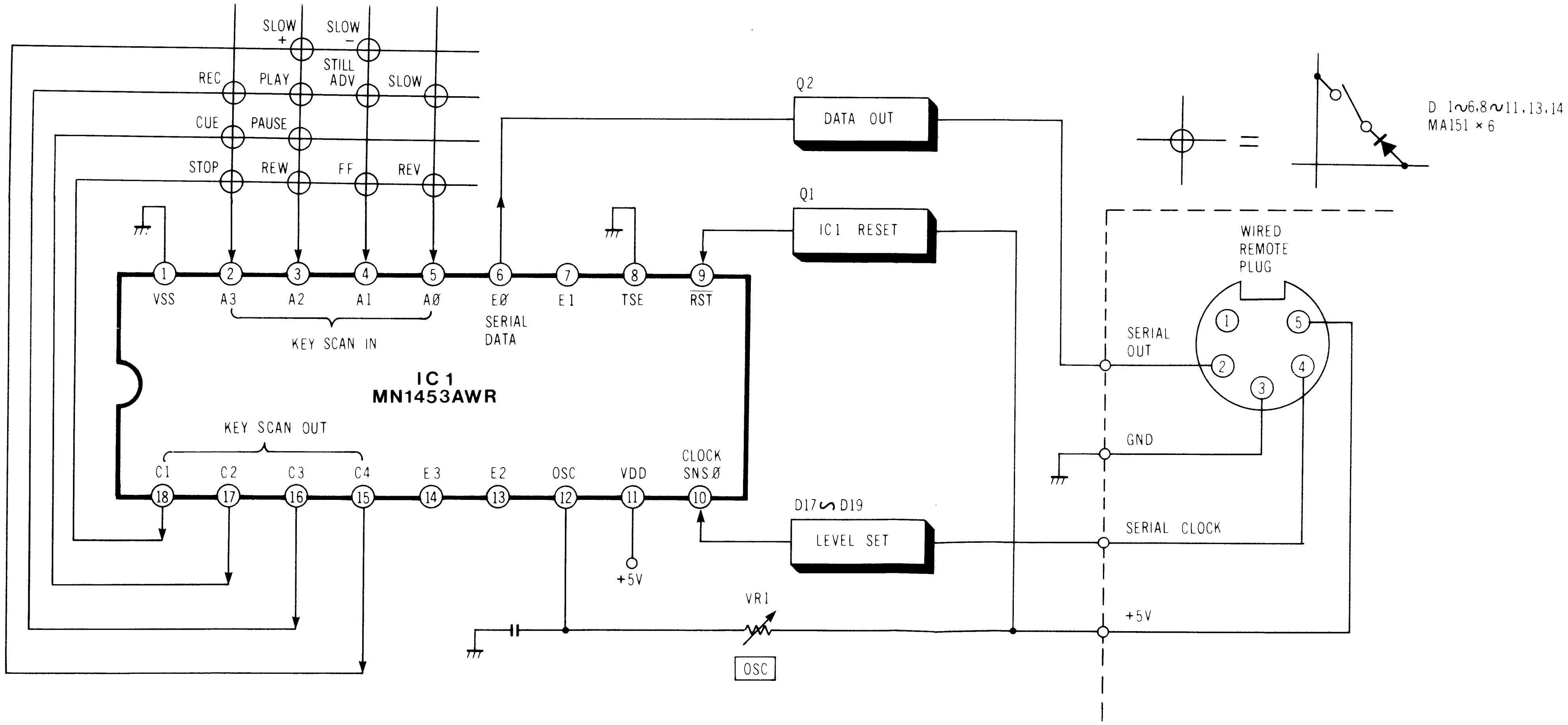
Frame Advance Button
During viewing of a still-frame picture, press this button to advance the picture one frame at a time or hold it down for a slow-motion picture.

Slow-Motion Buttons
First press the SLOW Button during playback to view a slow-motion picture. Press the "+" or "−" button to increase or decrease the speed of the SLOW-MOTION picture.

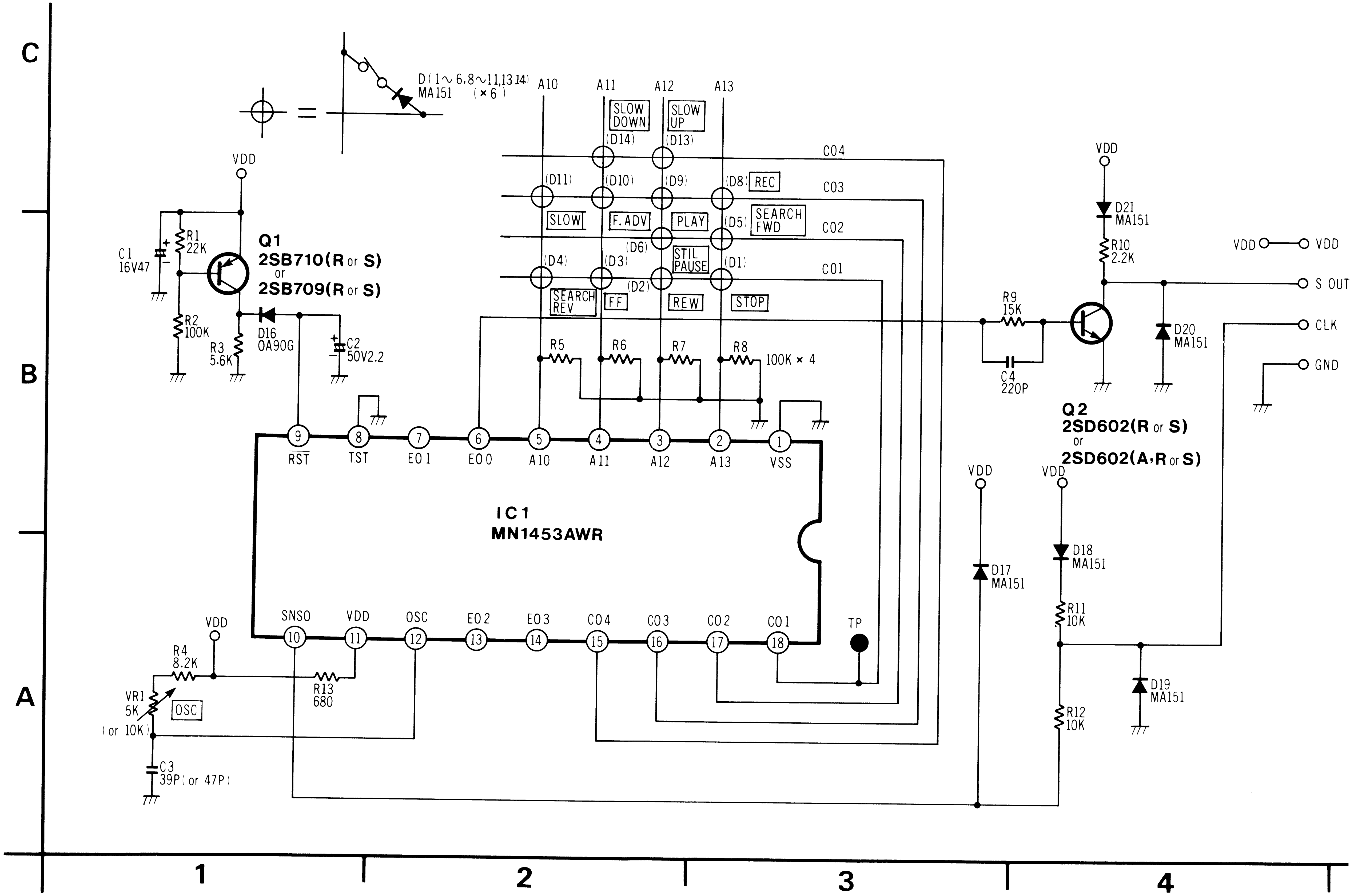
−	I►	+
1/25 ~ 1/5 ~ 1/3		

Cue Button
During the play mode pressing this button will allow you to view the tape in the forward direction at about 5 times the recorded tape speed.

WIRED REMOTE CONTROL BLOCK DIAGRAM

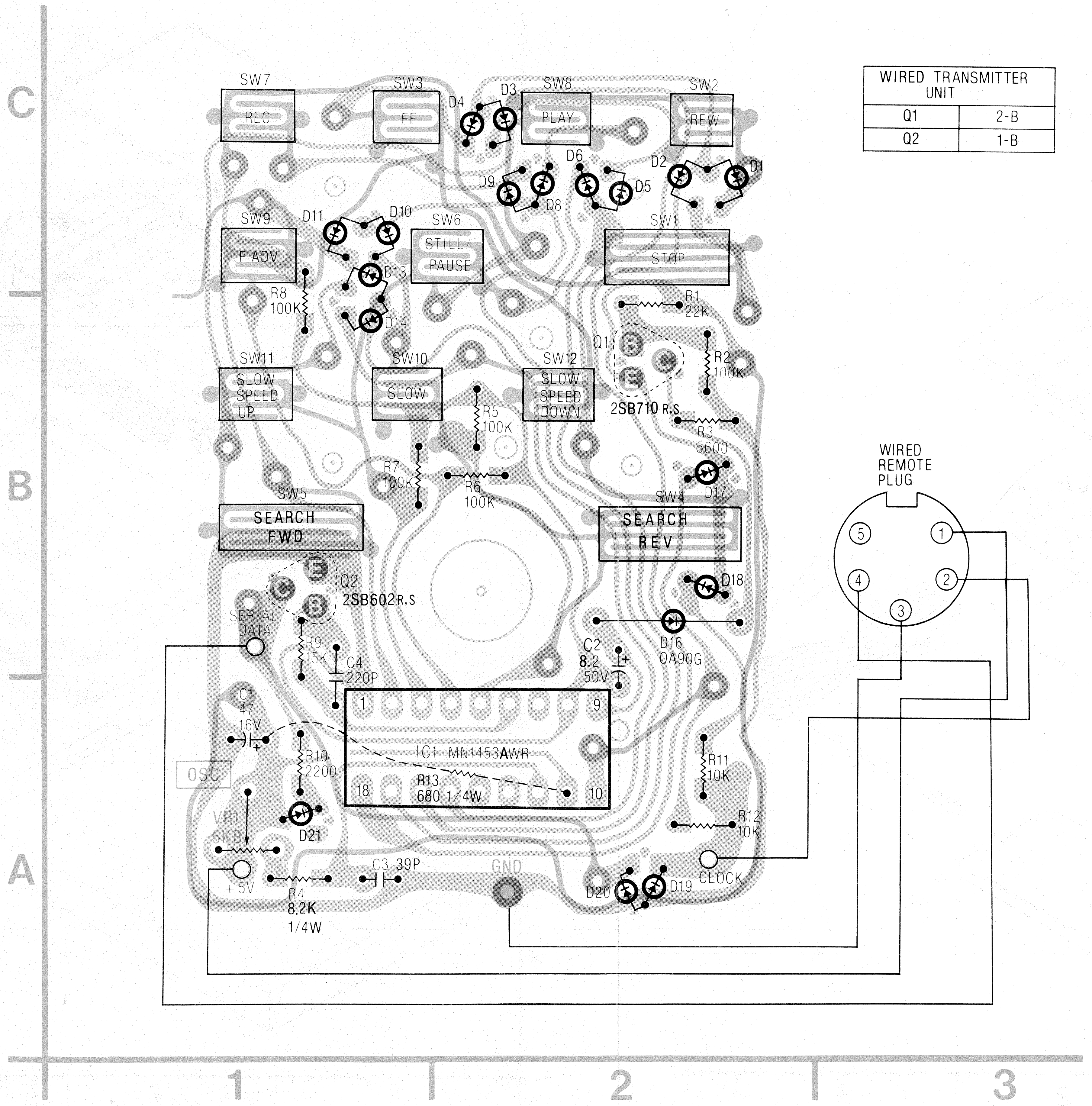

SLOW +
SLOW −
REC
PLAY
STILL ADV
SLOW
CUE
PAUSE
STOP
REW
FF
REV
1 VSS
2 A3
3 A2
4 A1
5 A0
KEY SCAN IN
6 E0 SERIAL DATA
7 E1
8 TSE
9 RST
IC 1
MN1453AWR
KEY SCAN OUT
18 C1
17 C2
16 C3
15 C4
14 E3
13 E2
12 OSC
11 VDD
10 CLOCK SNS0
+5V
VR1
OSC
Q2
DATA OUT
Q1
IC1 RESET
D17∽D19
LEVEL SET
=
D 1∼6,8∼11,13,14
MA151 × 6
WIRED REMOTE PLUG
1
2
3
4
5
SERIAL OUT
GND
SERIAL CLOCK
+5V

WIRED REMOTE CONTROL SCHEMATIC DIAGRAM


C
B
A
1
2
3
4
D(1~6,8~11,13,14) MA151 (×6)
A10
A11
A12
A13
SLOW DOWN
SLOW UP
(D14)
(D13)
C04
(D11)
(D10)
(D9)
(D8)
REC
C03
SLOW
F.ADV
PLAY
(D5)
SEARCH FWD
C02
(D6)
(D4)
(D3)
STIL PAUSE
(D1)
C01
(D2)
SEARCH REV
FF
REW
STOP
VDD
C1 16V47
R1 22K
Q1
2SB710(R or S)
or
2SB709(R or S)
R2 100K
R3 5.6K
D16 OA90G
C2 50V2.2
R5
R6
R7
R8
100K × 4
9
8
7
6
5
4
3
2
1
RST
TST
EO1
EO0
A10
A11
A12
A13
VSS
IC1
MN1453AWR
SNSO
VDD
OSC
EO2
EO3
CO4
CO3
CO2
CO1
10
11
12
13
14
15
16
17
18
TP
VDD
R4 8.2K
VR1 5K (or 10K)
OSC
R13 680
C3 39P(or 47P)
VDD
D21 MA151
R10 2.2K
R9 15K
C4 220P
D20 MA151
Q2
2SD602(R or S)
or
2SD602(A,R or S)
VDD
VDD
VDD
S OUT
CLK
GND
VDD
VDD
D17 MA151
D18 MA151
R11 10K
R12 10K
D19 MA151

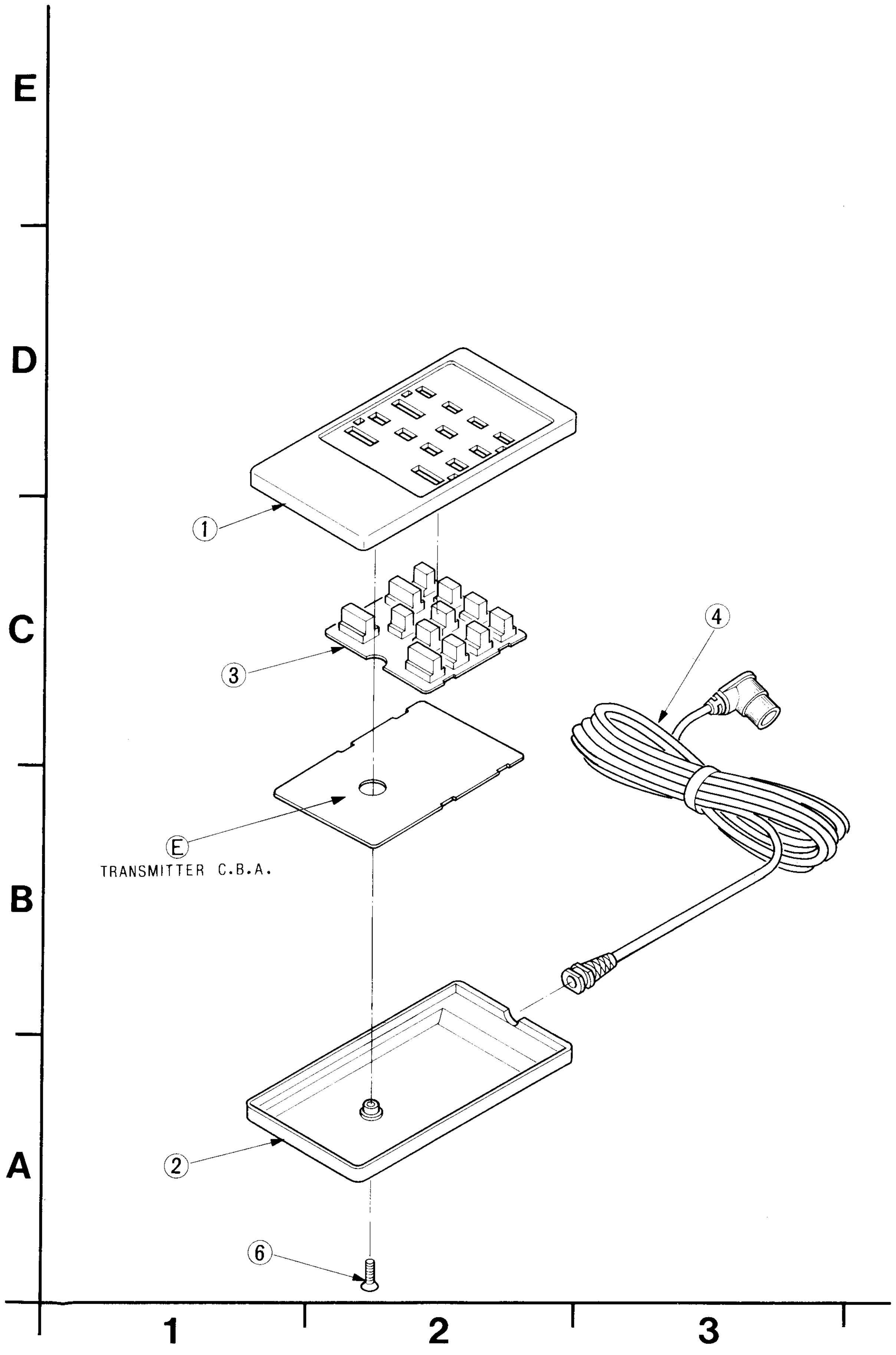
WIRED REMOTE CONTROL UNIT

WIRED TRANSMITTER UNIT	
Q1	2-B
Q2	1-B

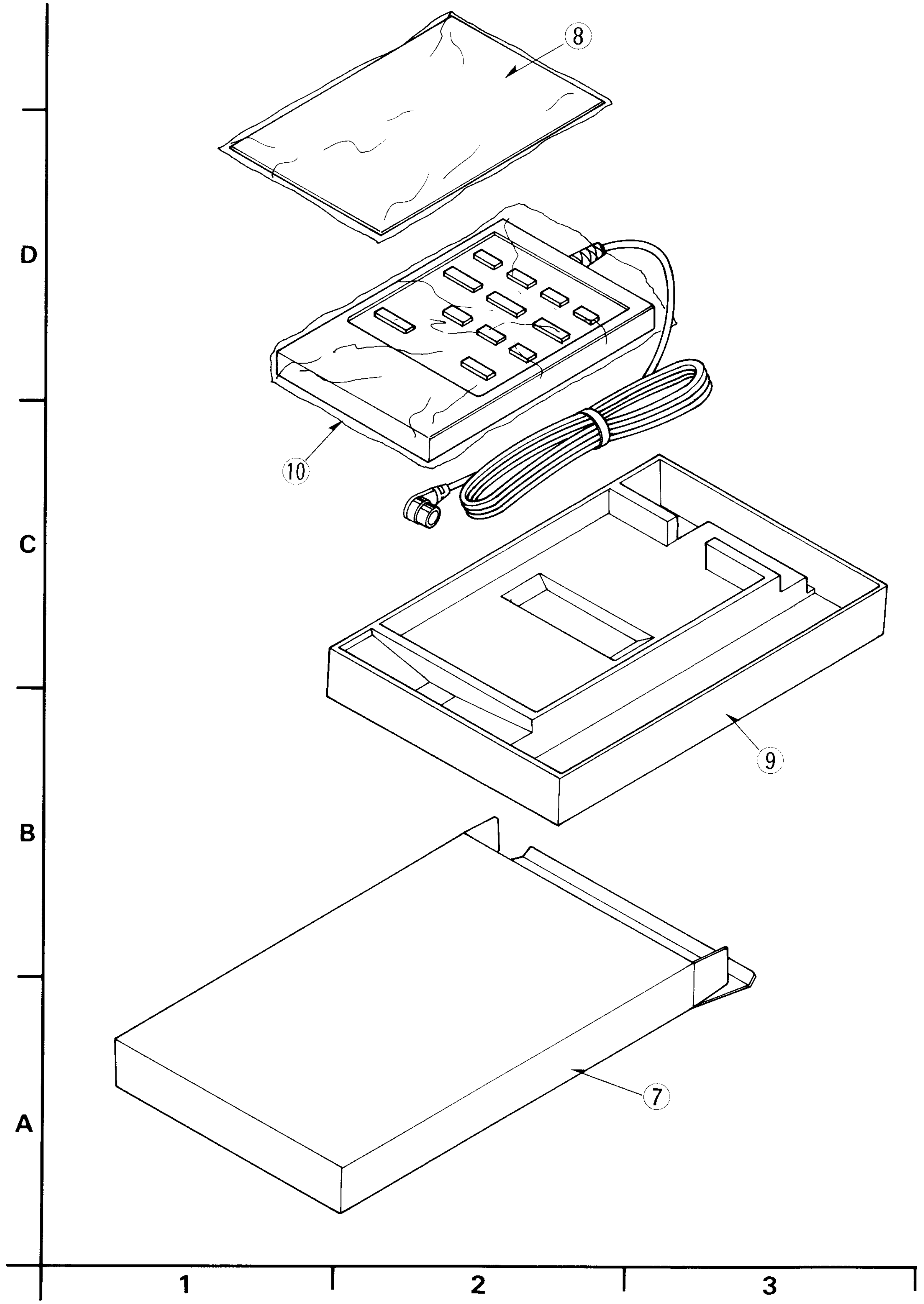


C
B
A
1
2
3
SW7
REC
SW3
FF
D4
D3
SW8
PLAY
SW2
REW
D6
D2
D1
D9
D8
D5
SW9
F ADV
D11
D10
SW6
STILL/
PAUSE
SW1
STOP
D13
R8
100K
D14
R1
22K
SW11
SLOW
SPEED
UP
SW10
SLOW
SW12
SLOW
SPEED
DOWN
Q1
B
C
E
2SB710 R,S
R2
100K
R5
100K
R3
5600
R7
100K
R6
100K
D17
SW5
SEARCH
FWD
SW4
SEARCH
REV
E
C
B
Q2
2SB602 R,S
D18
SERIAL
DATA
R9
15K
C4
220P
D16
0A90G
C2
8.2
50V
C1
47
16V
1
9
IC1 MN1453AWR
R10
2200
R11
10K
OSC
R13
680 1/4W
18
10
VR1
5KB
D21
R12
10K
+5V
R4
8.2K
1/4W
C3 39P
GND
D20
D19
CLOCK
WIRED
REMOTE
PLUG
5
1
4
2
3

EXPLODED VIEW ① *Wired Remote Control Section*


E
D
C
B
A
①
③
④
Ⓔ
TRANSMITTER C.B.A.
②
⑥
1
2
3

② *Packing Parts Section*


⑧
D
⑩
C
⑨
B
A
⑦
1
2
3

MECHANICAL REPLACEMENT PARTS LIST

Model No. NV-A13-E

Notes:
1. * Be sure to make your orders of replacement parts according to this list.

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
1	VYK0452	Top Case	1	
2	VYK0453	Bottom Case	1	
3	VGU0664	Rubber Plate Contact	1	
4	VEC0305	Remote Control Cable	1	
6	XSS26+10FC	Screw	1	
7	VPK0161	Packing Case	1	
8	VQF0910	Fan Bag	1	
9	VPN0819	Cushion	1	
10	XZB10X22BOS	Polyethylene Bag	1	

ELECTRICAL REPLACEMENT PARTS LIST

Model No. NV-A13-E

Notes:
1. * Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
   Components identified by ⚠ have special characteristics important for safety.
   When replacing any of these components, use only the original ones.
3. Unless otherwise specified.
   All resistors are in OHMS (Ω), 1/8W ±5% carbon. K=1,000Ω, M=1,000KΩ
   All capacitors are in MICROFARADS (μF), ±10% P=μμF.

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
		Transmitter P.C.B. Unit	1	
IC1	MN1453AWR	Integrated Circuit	1	
D16	OA90G	Diode	1	
		Capacitors	1	
C1	ECEA1CK470	Electrolytic 10V 47μ	1	
C2	ECEA1HK2R2	Electrolytic 50V 2.2μ	1	
C3	ECCF1H390JV	Ceramic 39P	1	
C4	ECKF1H221KB	Ceramic 220P	1	
R13	ERD25TJ681	Resistor 680	1	
VR1	EVN84A00B53	Variabel Resistor 5K	1	

Panasonic
MATSUSHITA ELECTRIC

Printed in Japan

ORDER NO. VRD-8206-099

Service Manual

Wireless Remote Control

Vol. 8

NV-A17-E

SPECIFICATIONS

Power:	DC. 3.2V ~ DC. 2.2V
Weight:	100g
Dimensions:	64(W) × 22(H) × 155(D) mm

Weight and dimensions shown are approximate.

Specifications are subject to change without notice.

Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

CONTENTS

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MECHANICAL REPLACEMENT PARTS LIST 8- 8

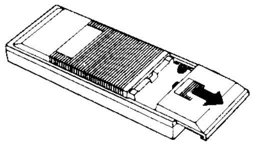
ELECTRICAL REPLACEMENT PARTS LIST 8- 8

BATTERY REPLACEMENT CAUTION

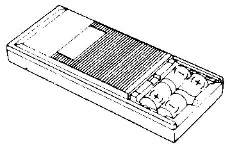
- ●The Wireless Remote Control is powered by two batteries (size IEC standard R6, UM-3 "AA"). The life of the batteries is about a year although this will depend on the number of times the unit is used. Replace or inspect the batteries once a year.
- ●The batteries should be replaced with fresh units even if a year has not elapsed since the previous replacement when the unit does not function even when operated near the tuner or video recorder or when the unit's wireless remote transmitter operational indicator fails to light or does not light properly even when function buttons are pushed.
- ●Load the new batteries with their polarities (⊕ and ⊖) aligned properly.
- ●Do not heat, disassemble or shortcircuit the old batteries.
- ●If you do not intend to use the remote control for a long period of time, remove the batteries and store them in a cool, dry place.
- ●Remove spent batteries immediately and dispose of them.
- ●Do not mix old and new batteries (Also never mix alkaline batteries with manganese batteries.)
- ●In the unlikely event that the dry batteries leak, wipe away all the leakage inside the battery compartment and then replace with fresh batteries.

Load the battereies as follows:

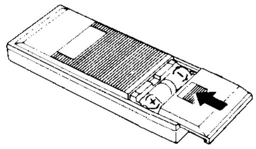
① Remove the Battery Compartment lid.



② Place two batteries in the Battery Compartment as indicated inside the Battery Compartment.



③ Replace the lid.



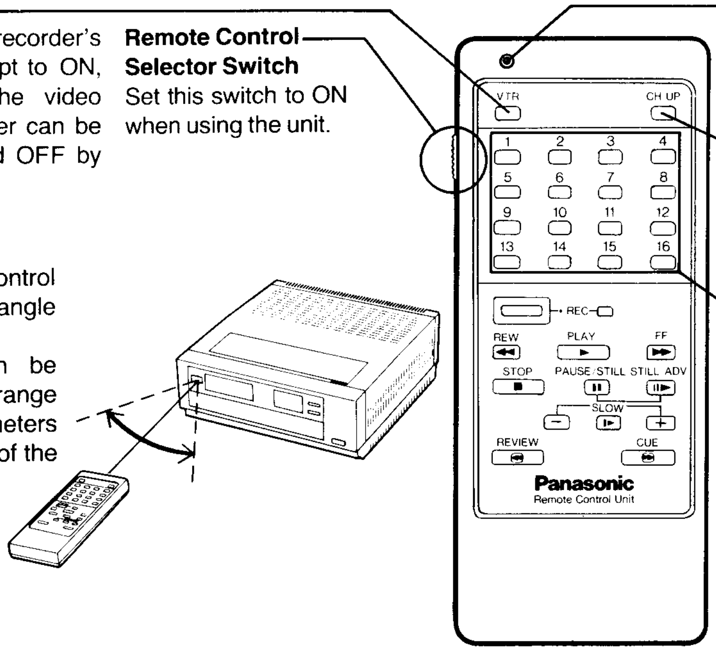
CONTROLS AND COMPONENTS

Set the remote control selector switch to ON before a remote control operation.

VTR Switch
When the video recorder's VTR switch is kept to ON, the power to the video recorder and tuner can be switched ON and OFF by this unit.

Remote Control Selector Switch
Set this switch to ON when using the unit.

- The remote control light-sensing angle is about 60°.
- The unit can be used within a range of about 7 meters from the front of the tuner.


VTR
CH UP
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
REC
REW
PLAY
FF
STOP
PAUSE/STILL
STILL ADV
SLOW
REVIEW
CUE
Panasonic
Remote Control Unit

Wireless Remote Transmitter Operational Indicator

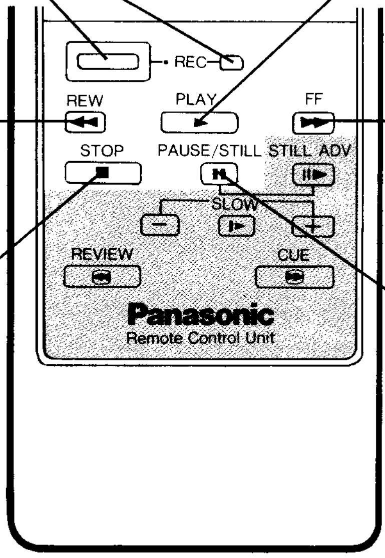
Channel Up Button
This changes over the channel every time it is pushed.

Channel Selection Button
Push the button having a number corresponding to the desired channel to pick up stations.

Record Button
Recording begins when both buttons are pressed at the same time.

Rewind Button
Press this button to rewind tapes.

Stop Button
Press this button to stop the tape.


REC
REW
PLAY
FF
STOP
PAUSE/STILL
STILL ADV
SLOW
REVIEW
CUE
Panasonic
Remote Control Unit

Play Button
Press this button to playback recorded tapes.

Fast Forward Button
Press this button to move the tape forward rapidly.

Pause/Still Button
Press this button to temporarily stop the tape movement in either the recording or playback mode. During playback, a still-frame picture is produced when the pause is in use. Press again to release pause.

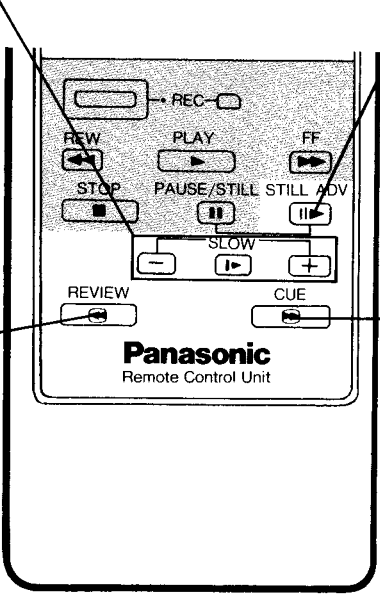
Slow-Motion Buttons

First press the SLOW Button during playback to view a slow-motion picture. Press the "+" or "−" button to increase or decrease the speed of the SLOW-MOTION picture.

−	I▶	+
1/25 ~ 1/5 ~ 1/3		

Review Button

During the play mode pressing this button will allow you to view the tape in reverse at about 5 times the recorded tape speed.


REC
REW
PLAY
FF
STOP
PAUSE/STILL
STILL ADV
SLOW
REVIEW
CUE
Panasonic
Remote Control Unit

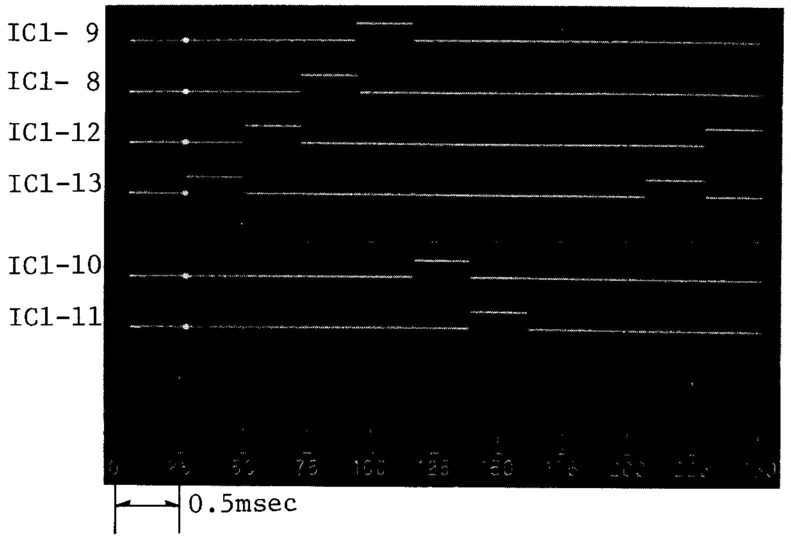
Frame Advance Button

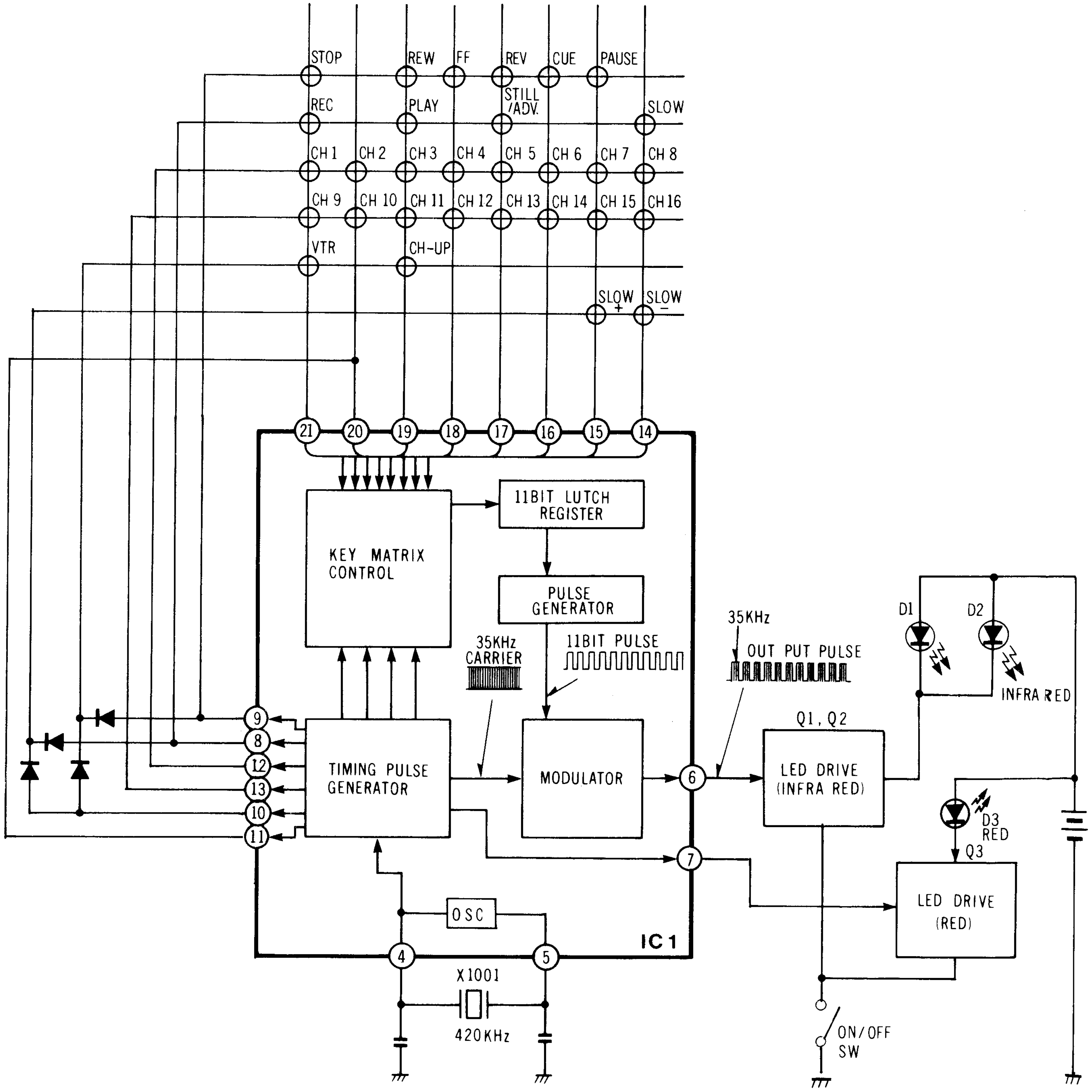
During viewing of a still-frame picture, press this button to advance the picture one frame at a time or hold it down for a slow-motion picture.

Cue Button

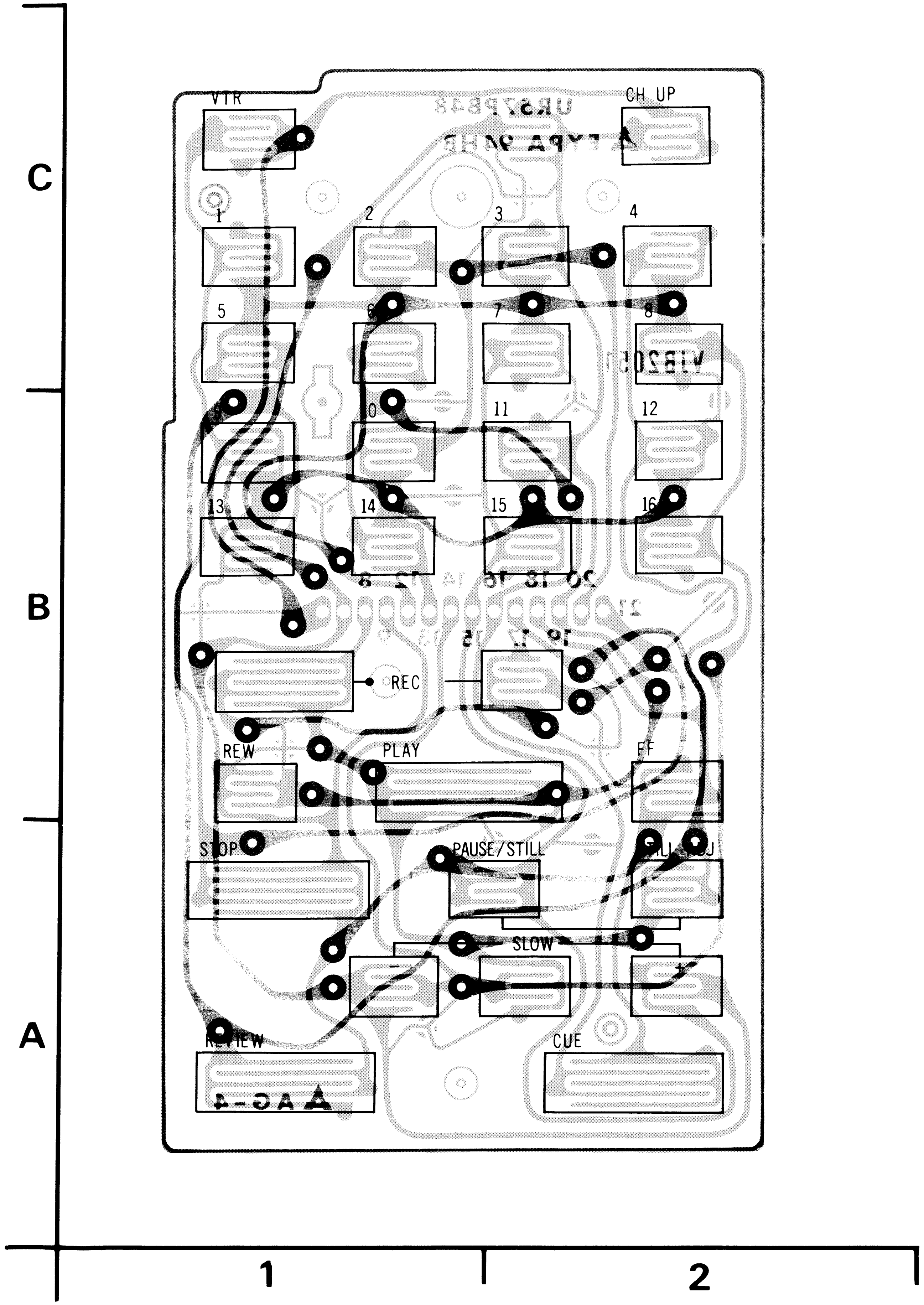
During the play mode pressing this button will allow you to view the tape in the forward direction at about 5 times the recorded tape speed.

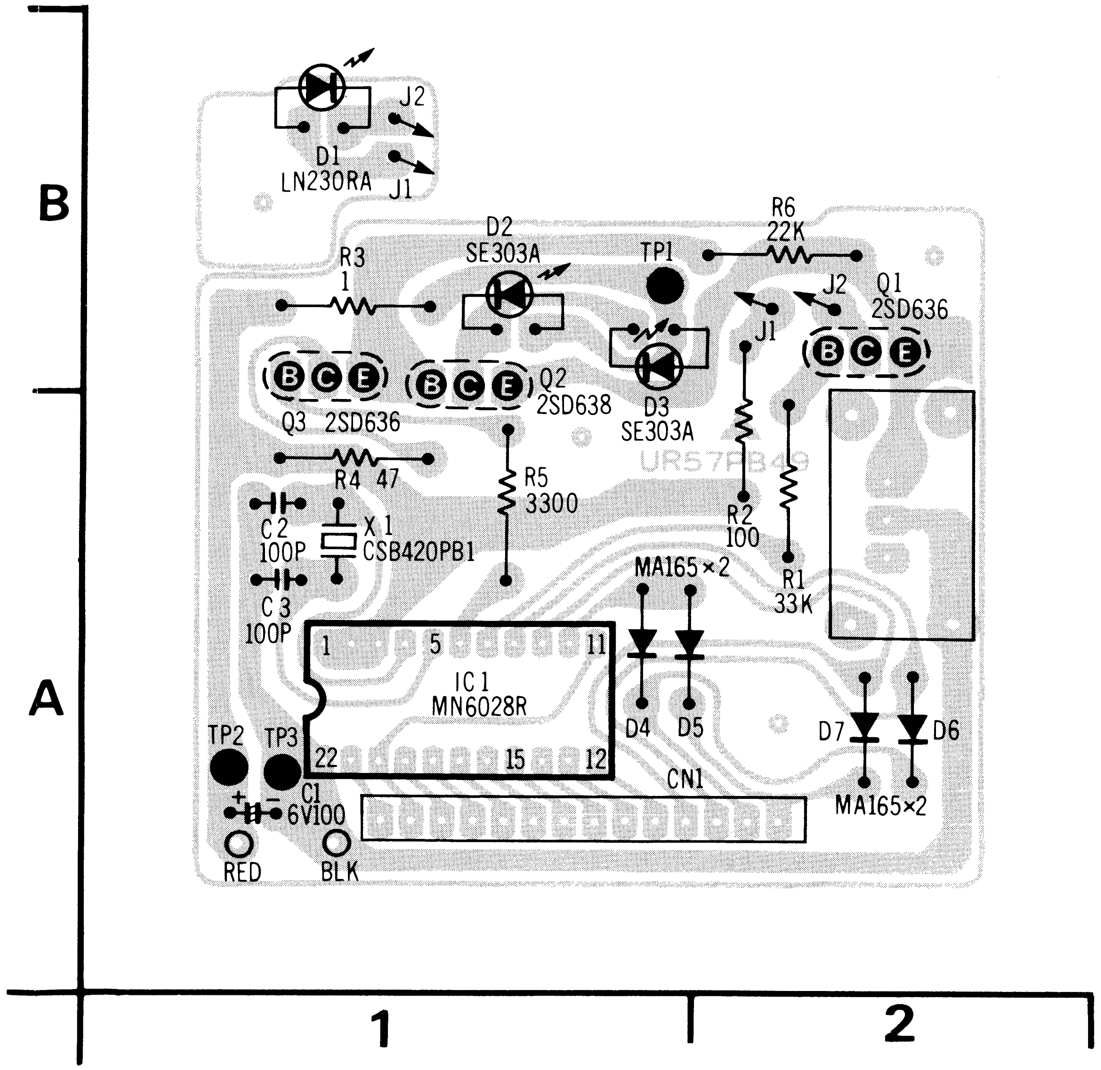
INFRARED TRANSMITTER BLOCK DIAGRAM




STOP
REW
FF
REV
CUE
PAUSE
REC
PLAY
STILL /ADV.
SLOW
CH 1
CH 2
CH 3
CH 4
CH 5
CH 6
CH 7
CH 8
CH 9
CH 10
CH 11
CH 12
CH 13
CH 14
CH 15
CH16
VTR
CH-UP
SLOW +
SLOW −
21
20
19
18
17
16
15
14
KEY MATRIX CONTROL
11BIT LUTCH REGISTER
PULSE GENERATOR
35KHz CARRIER
11BIT PULSE
TIMING PULSE GENERATOR
MODULATOR
9
8
12
13
10
11
6
7
4
5
OSC
IC1
X1001
420KHz
35KHz
OUT PUT PULSE
Q1, Q2
LED DRIVE (INFRA RED)
D1
D2
INFRA RED
D3 RED
Q3
LED DRIVE (RED)
ON/OFF SW

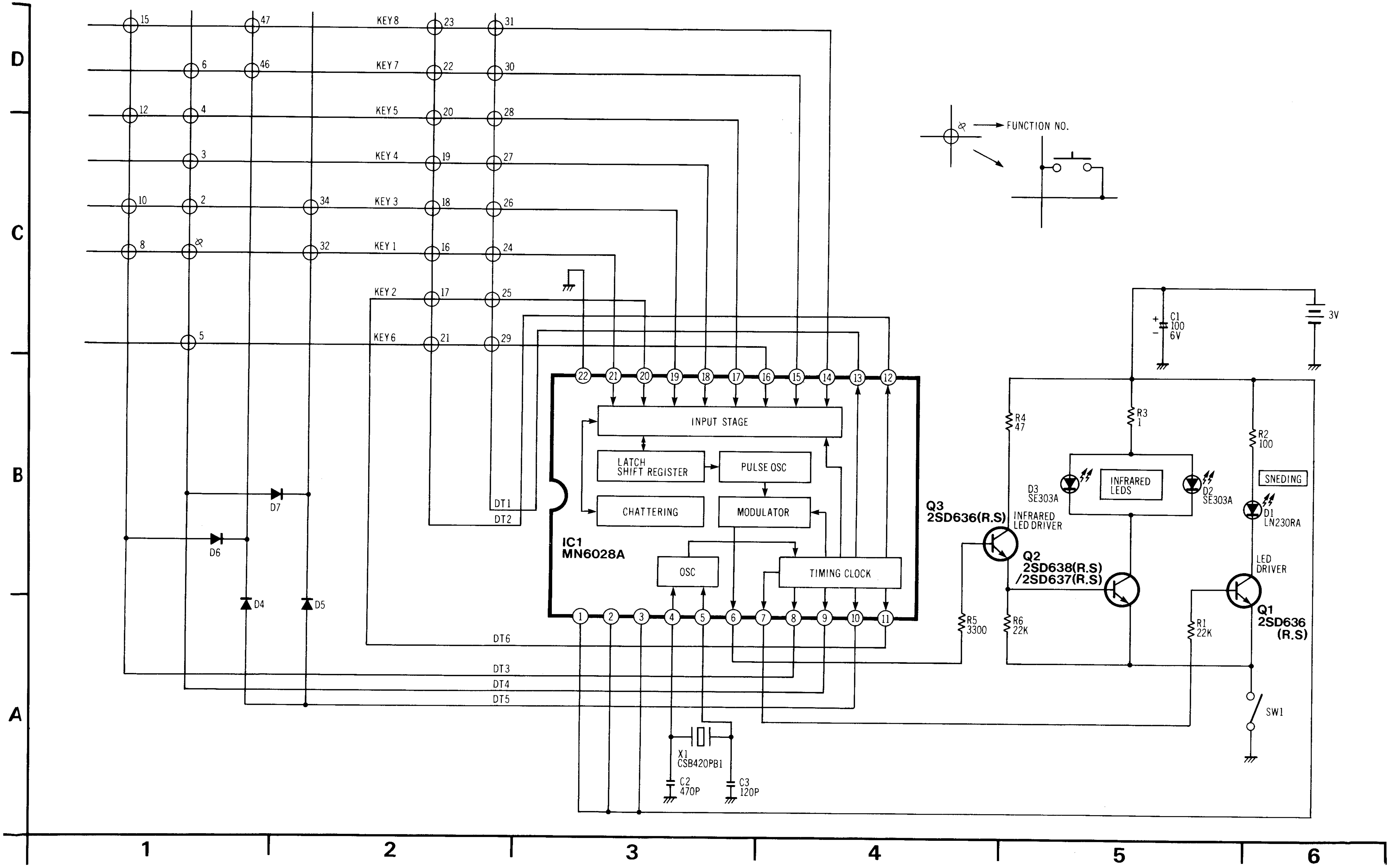
IR WIRELESS TRANSMITTER UNIT


C
B
A
1
2
VTR
CH UP
UR57PB48
1
2
3
4
5
6
7
8
11
12
13
14
15
16
REC
REW
PLAY
FF
STOP
PAUSE/STILL
SLOW
REVIEW
CUE

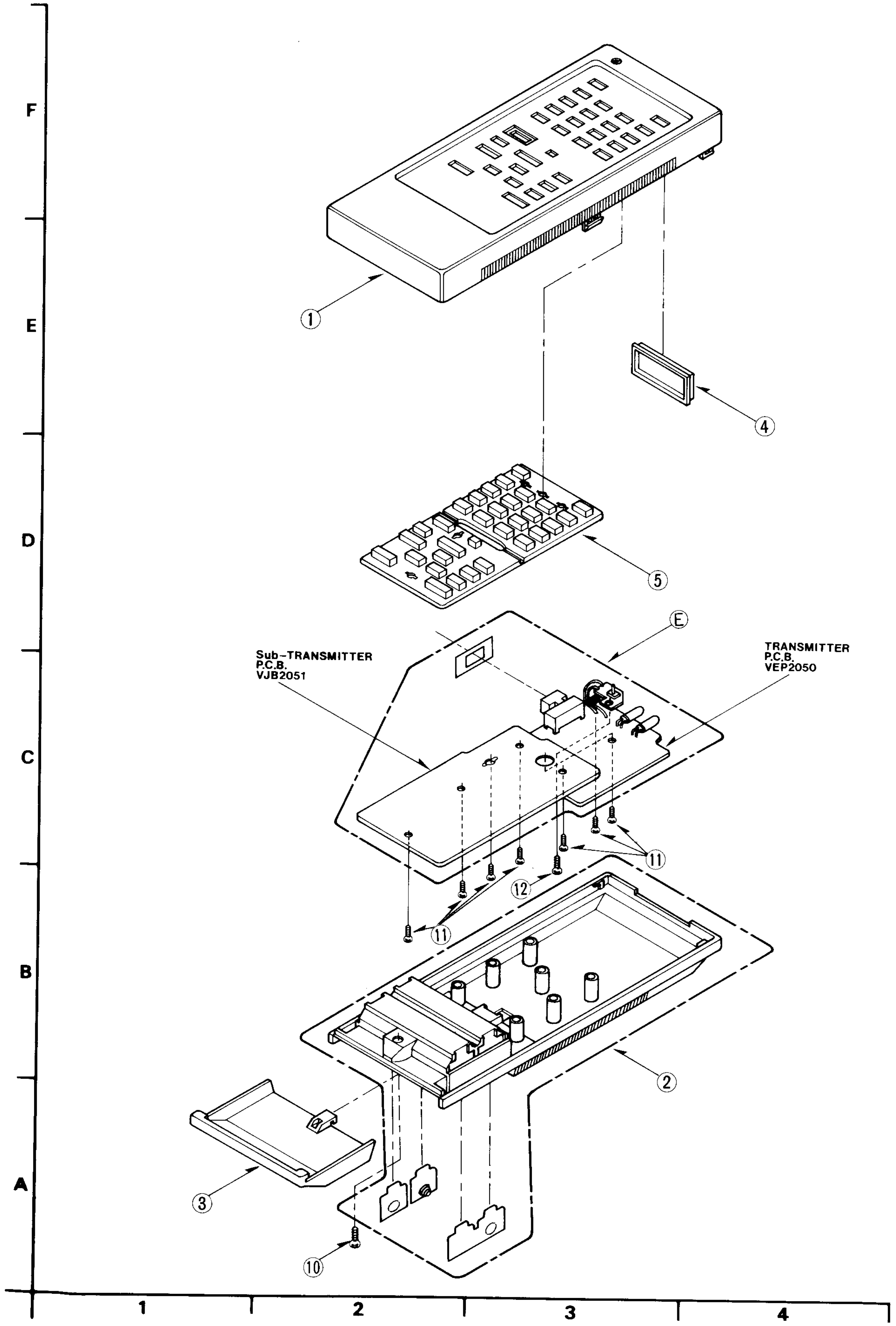

B
A
1
2
D1
LN230RA
J2
J1
R3
1
D2
SE303A
TP1
R6
22K
J2
Q1
2SD636
J1
Q3 2SD636
Q2
2SD638
D3
SE303A
R4 47
R5
3300
C2
100P
X 1
CSB420PB1
C 3
100P
R2
100
R1
33K
MA165×2
IC 1
MN6028R
1
5
11
22
15
12
D4
D5
D7
D6
MA165×2
TP2
TP3
C1
6V100
CN1
RED
BLK
UR57PB49

FUNCTION NO.	FUNCTION
0	STOP
2	REW
3	F.F
4	REV
5	CUE
6	PAUSE/STILL
8	REC
10	PLAY
12	
15	SLOW (×1/2)
16	CH1
17	CH2
18	CH3
19	CH4
20	CH5
21	CH6
22	CH7
23	CH8
24	CH9
25	CH10
26	CH11
27	CH12
28	CH13
29	CH14
30	CH15
31	CH16
32	VTR
34	CH UP
46	SLOW+
47	SLOW−

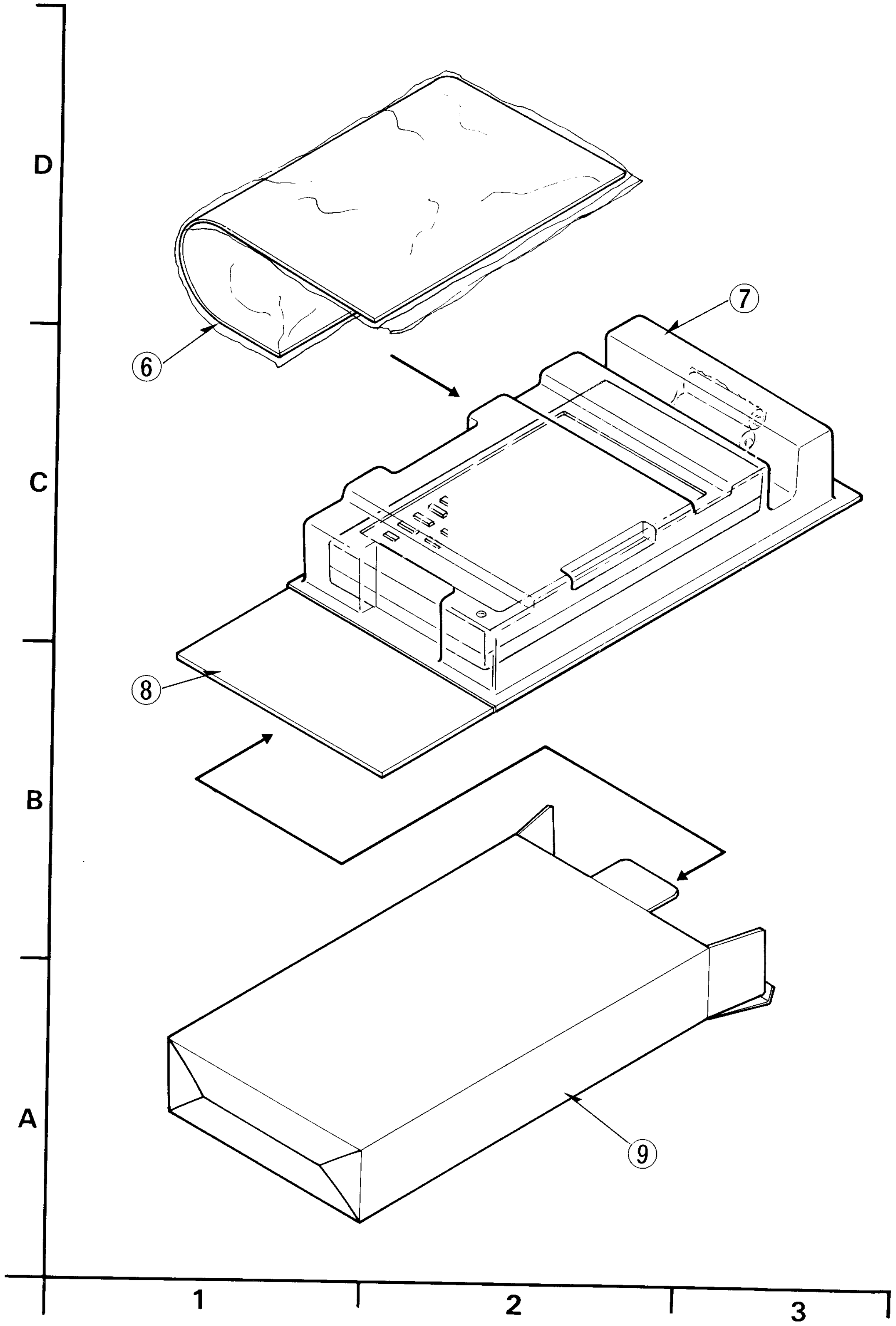
IR WIRELESS TRANSMITTER SCHEMATIC DIAGRAM


D
C
B
A
1
2
3
4
5
6
KEY 8
KEY 7
KEY 5
KEY 4
KEY 3
KEY 1
KEY 2
KEY 6
15
47
23
31
6
46
22
30
12
4
20
28
3
19
27
10
2
34
18
26
8
∅
32
16
24
17
25
5
21
29
∅
FUNCTION NO.
INPUT STAGE
LATCH
SHIFT REGISTER
PULSE OSC
CHATTERING
MODULATOR
OSC
TIMING CLOCK
IC1
MN6028A
DT1
DT2
DT3
DT4
DT5
DT6
D7
D6
D4
D5
X1
CSB420PB1
C2
470P
C3
120P
C1
100
6V
3V
R4
47
R3
1
R2
100
D3
SE303A
INFRARED
LEDS
D2
SE303A
SNEDING
D1
LN230RA
Q3
2SD636(R.S)
INFRARED
LED DRIVER
Q2
2SD638(R.S)
/2SD637(R.S)
LED
DRIVER
Q1
2SD636
(R.S)
R5
3300
R6
22K
R1
22K
SW1

EXPLODED VIEWS ❶ *Transmitter Section*

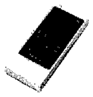

F
E
D
C
B
A
1
2
3
4
①
④
⑤
Ⓔ
Sub–TRANSMITTER
P.C.B.
VJB2051
TRANSMITTER
P.C.B.
VEP2050
⑪
⑫
⑪
②
③
⑩

❷ *Packing Parts Section*


D
C
B
A
1
2
3
⑥
⑦
⑧
⑨

MECHANICAL REPLACEMENT PARTS LIST

Model No. NV-A17-E



Notes:
1. * Be sure to make your orders of replacement parts according to this list.

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
1		VYK0430	Top Case Unit	1	
2		VYK0473	Bottom Case Unit	1	
3		VYK0474	Battery Cover Unit	1	
4		VKW0066	Filter Plate	1	
5		VGU0616	Rubber Plate	1	
6		VQF0875	Fan Bag	1	
7		VPN0798	Cushion	1	
8		VPN0799	PAD	1	
9		VPK0152	Packing Case	1	
10		XTN3+6G	Screw	1	
11		XTB2+4G	Screw	7	
12		XTN26+4G	Screw	1	
			Switch		
SW1		ESD14201		1	

ELECTRICAL REPLACEMENT PARTS LIST

Model No. NV-A17-E

Notes:
1. * Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
   Components identified by △ have special characteristics important for safety.
   When replacing any of these components, use only the original ones.
3. Unless otherwise specified,
   All resistors are in OHMS (Ω), 1/8W ±5% carbon. K=1,000Ω, M=1,000KΩ.
   All capacitors are in MICROFARADS (μF), ±10% P=μμF.

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
		VEP2050	Remote Control Transmitter		NV-A17E
			Integrated Circuit		
IC1		MN6028R		1	
			Transistors		
Q1		2SD636		1	(Q,R) or 2SD637(Q,R)
Q2		2SD638		1	(R,S) or 2SD639(R,S)
Q3		2SD636		1	(Q,R) or 2SD637(Q,R)
			Diodes		
D1		LN230RA	LED	1	
D2,3		SE303A	IR LED	2	or LN66(R,S)
D4-7		MA165		4	
			Resistors		
R1		ERD25TJ333	33K	1	
R2		ERD25TJ101	100	1	
R3		ERD25TJ1R0	1	1	
R4		ERD25TJ470	47	1	
R5		ERD25TJ332	3.3K	1	
R6		ERD25TJ223	22K	1	
			Capacitors		
C1		ECEA0JS101	Electrolytic 6.3V 100	1	
C2,3		ECKF1H101KB	Ceramic 50V 0.01	2	

Panasonic

MATSUSHITA ELECTRIC

Printed in Japan

FILE No. VHS-T-82-6-027

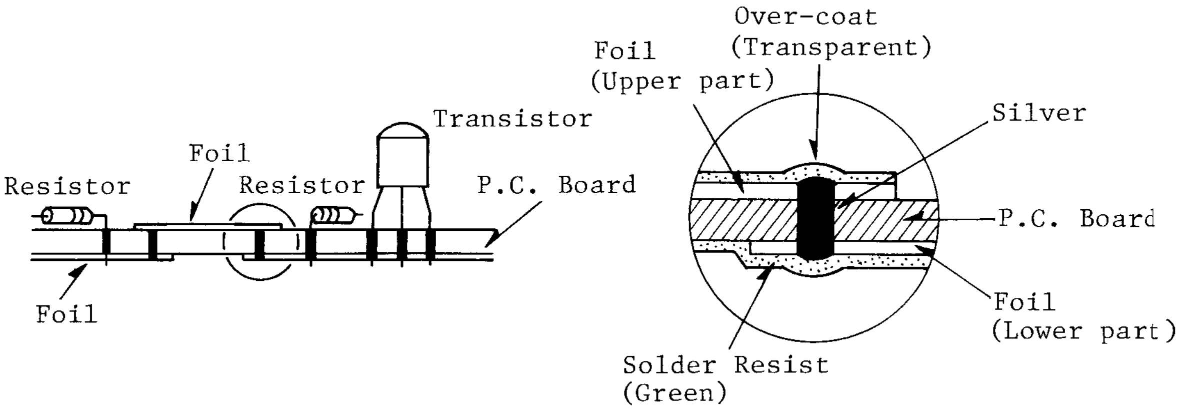
Technical Information

VHS Video Cassette Recorder

Subject: Precautions During Services

To achieve higher integration in the installation of parts, this VTR uses the dual-face printed circuit boards: one based on the copper-through system (used for the System Control P.C. Board) and the other on the silver-through system (used for the Main P.C. Board). Various precautions needed to correctly perform servicing the silver-through P.C. Board are described below.

(1) Construction of the silver-through dual-face P.C. Board.



(2) Precautions in handling the silver-through part.

* Do not bring the solder iron into direct contact with the silver-through part or insert the lead-wire of any part in it, especially when replacing any of the parts.

* During inspection, be extremely careful not to cause an excessive current to flow through the silver-through part by short-circuiting any of the parts or the printed foil. The silver-through part allows a maximum of 300mA of the current to flow through.

* Handle the silver-through part with extreme care not to cause any damage and/or dropout of the over-coat (transparent) and solder-resist (green) materials coated on both surfaces.

* Be extremely careful not to cause any drop of water or any bit of grease to adhere on the silver-through part.

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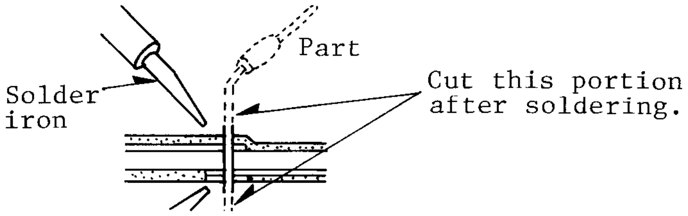
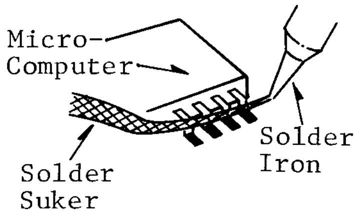
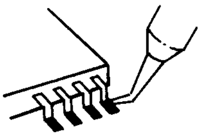
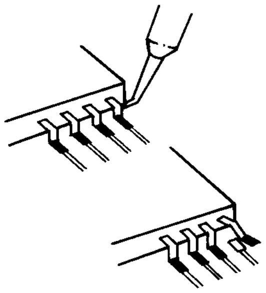
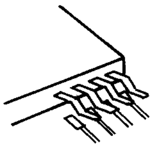
(3) Repairing the silver-through part.

- * Extrude silver from the silver-through part using any proper means such as the lead-wires of any part.
- * Strip the coated materials such as the over-coat (transparent) and solder-resist (green) off from the silver-through part.
- * Finally, carefully insert the lead-wires of the related parts and perform soldering as evenly as possible.



Method of replacing the FLAT Package-type Micro-computer.

The flat package-type microcomputer has the different form from any of the conventional micro-computers because of smaller size and lighter weight newly provided. The replacing method is described below, which will help you to effectively perform services when replacing it.

Procedures in replaceing the flat package-type micro-computer		Precautions
Removal		
Before removing the micro-computer from the P.C. board, absorb the solders deposited on the pins using a clean solder sucker shown in the drawing so that the residual solder will be minimized.		Use the solder iron (model VFK0248) specified for use with chip parts. Make sure to connect a 240V-AC transformer (model VFK0249) to the solder iron which is designed for use with 110V of the AC voltage.
Melt the solder on each pin (an electrode) with the top-end of the solder iron.		To prevent stripping of the printed foil, do not place the solder iron on any pin for a long while.
While the solder is still melted, pull up each pin using the top-end of the solder iron and remove the pin from the foil.		Pull up the pins as fast as possible while the solder is being melted. If the solder is solid, the printed foil may either drop off or be cut.
Repeat these operations in sequentially removing each pin from the foil.		Since the counter micro-computer (IC6001) has a back-up part to properly keep the counter-value, pull off this part (P6021) before starting to replace the micro-computer.

Installation of a new micro-computer

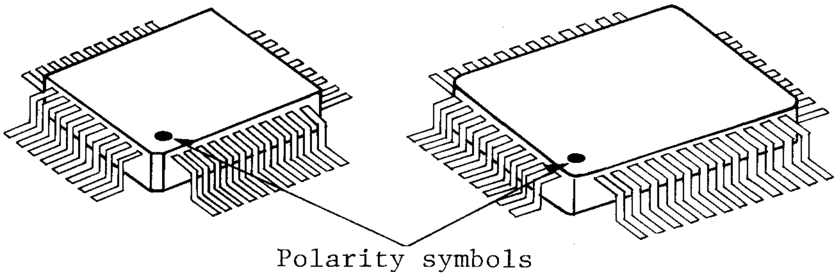
First, evenly apply the solder element to the foil surface where the pins must be soldered.

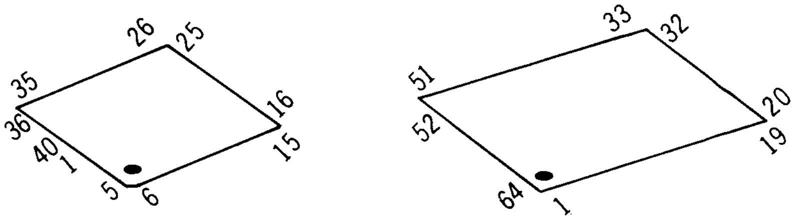
Properly determine the positions of the foil and pins by correctly aligning the polarity symbols, then secure the micro-computer in position.

Solder all pins to properly connect to the foil.

When installing either MN1455AVA or MN1455AVB.

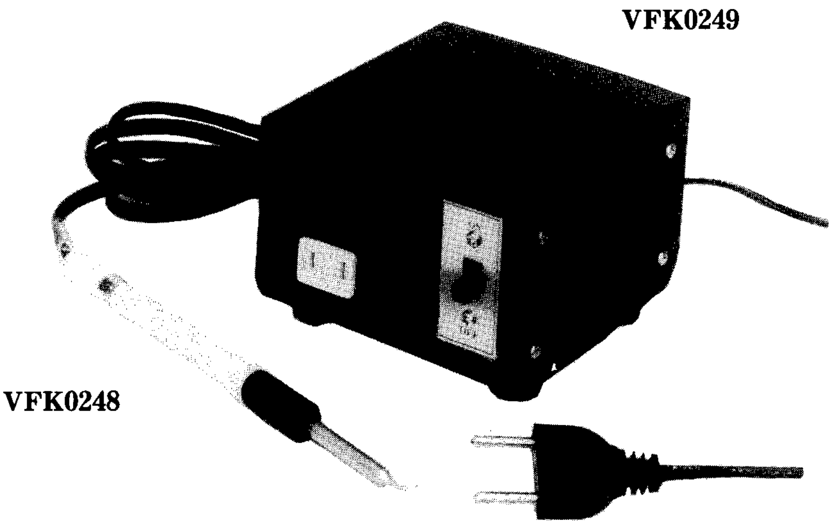
When installing μPD7502G090.





Correctly align the positions of these polarity symbols with the conor-cut portion as well as the polarity symbol on the printed circuit boards.

SPECIFICATIONS



Solder Iron

Rate: 100V—15W

Insulation
Resistance: 100MΩ

Max. Temp.: 400°C

Transformer

INPUT: 240V AC

OUTPUT: 100V AC
0.3A

Memo

Printed in Japan